

112.
RETROSPECT

OF THE

PROGRESS OF SURGERY,
DURING THE LAST DECADE.

BY

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TO
THE JUNIOR PRACTITIONERS OF IRELAND,

AND TO THE

STUDENTS IN THE IRISH SCHOOLS OF MEDICINE,

AND MORE ESPECIALLY TO THE PUPILS OF THE MEATH HOSPITAL AND COUNTY
DUBLIN INFIRMARY.

THIS RETROSPECT IS INSCRIBED,

By one whose ambition has ever been to acquaint himself with what is
Soundest in Surgical Pathology, and Most Successful in Surgical Practice,
in order that others may share in the fruits of his research.

M. H. C.

25, LOWER BAGGOT-STREET,
May, 1862.



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SURGICAL PATHOLOGY.

It is impossible that advances could have been made in physiology, such as the last ten or twelve years have witnessed, without a proportionate increase in our knowledge of the principles on which we must combat disease. I have no wish to encroach upon a province which does not come within my domain; yet, their boundaries being conterminous throughout a great extent, I find it impossible to avoid a reference to physiology while engaged in the consideration of the present condition of pathological knowledge.

If I might venture to epitomise the prevailing views of the principles and forms of life, I would say that, as regards the former, life is now looked upon less as a combination than as a correlative of the physical forces, and that the forms of life are deducible from one common type.

Life comes to be recognised, not as electricity or galvanism, not as heat or chemical action, nor yet as a combination of any two or more of these, but as a condition of matter (I am not now speaking of the life of the soul) changeable, under certain circumstances, into any of the other forms of force, allied to all, identical with none. Ultimately we must refer it, equally with all other physical forces, to the upholding will of the Creator.

In the words of Grove,^a "Causation is the will, creation the act of God." The deduction of the various forms of life from a common type forms the basis of the theories of Darwin^b and of Freke,^c and may be found in a more practical form in almost every page of *Virchow's Cellular Pathology*. In the 27th page of this work, as translated by Dr. Chance, we find the following exposition of the doctrine:—

"At the present time, neither fibres, nor globules, nor elementary granules, can be looked upon as histological starting-points. As long as living elements were conceived to be formed out of parts previously destitute of shape, such as formative fluids (*plastic matter, blastema cytotblastema*), any one of the above views could, of course, be entertained; but it is in this very particular that the revolution, which the last few years have brought with them, has been most marked. Even in pathology we can now go so far as to establish, as a general principle, *that no development of any kind begins de novo; and consequently as to reject the theory of equivocal (spontaneous) generation just as much in the history of the development of individual parts, as we do in that of entire organisms*; just as little as we can now admit that a *tænia* can arise out of a saburral mucous, or that, out of the residue of the decomposition of animal or vegetable matter, an infusorial animalcule, a fungus, or an alga, can be formed; equally little are we disposed to concede either in physiological or pathological histology, that a new cell can build itself up out of any non-cellular substance. Where a cell arises, there a cell must have previously existed (*omnis cellula a cellula*), just as an animal can spring only from an animal, a plant only from a plant. In this manner, although there are still a few spots in the body where absolute demonstration has not yet been afforded, the principle is, nevertheless, established, that in the whole series of living things, whether they be entire plants, or animal organisms, or essential constituents of the same, an eternal law of continuous development prevails. There is no discontinuity of development, of such a kind that a new generation can of itself give rise to a new series of developmental forms. No developed tissues can be traced back either to any large or small element, unless it be unto a cell."

In this doctrine of *omnis cellula a cellula* is contained the germ of the advances of both sound physiology and pathology.

Virchow has elaborated the doctrine in its multitudinous bearings upon the healthy and morbid actions of the human body. One by one he has taken the various constituent elements of the tissues, and has traced them

^a Correlation of Physical Forces, by W. R. Grove, Q.C.

^b Darwin on the Origin of Species. 1860.

^c Freke on the Origin of Species. 1861.

I must not be understood as expressing any opinion on these theories. I have merely referred to them as expressions of prevalent opinions.

up to a common source—the cells of connective tissue; bone, muscle, nerve, skin, tendon, and fat, all own a common parentage; and, as there will be occasion to show further on, all morbid elements are derived by him from the same source.

In this view of the community of origin of cell-elements, there is a wonderful convergence between independent observers. As regards physiology, it must be left to others to follow out the subject, while here it is endeavoured to show its general bearing upon surgical pathology.

As life, in its relation to matter, appears to be a correlative of the forces of heat, motion, electricity, chemical affinity, &c., so the deviations from health seem to consist in the intermixture of one or other of these forces with the force of life.

Prior to the last decade, the chemical processes of degeneration of tissue became dimly known to us through the writings of Müller, Henle, Goodsir, and Reinhart. To the latter especially are we indebted for the first outline of the process by which albuminous tissues part with their vitality, and, becoming amenable to chemical laws, are converted into oil (by removal of their nitrogenous element),^a prior to their final absorption. The identity of this decomposition with what occurs in disease was made out by Quain and Wagner; but it is especially to Virchow that we are indebted for thoroughly systematizing the entire range of fatty degenerations. He gives to the changes of which this is the principal, the term of *necrobiosis*, which he explains to mean “death, brought on by (altered) life—a spontaneous wearing out of living parts—the destruction and annihilation consequent upon life—natural as opposed to violent death (mortification).”

It is not necessary to follow Virchow through the minutiae of this subject; it is sufficient to point out how, in the typical writings of the past decade, life is looked upon as a condition, not as an entity; and disease as a disordered condition.

The all-important signification of these views for the right comprehension of most morbid processes, and, above all, of the dyscrasæ, must be too evident to require further amplification.

Men are now accustomed to look for the seat of life, not in any one central organ, whether the distributor of a grosser or of a more subtle (supposed) fluid, nor in the blood itself, nor yet in the tissues alone; but in all parts of the body in proportion to the activity of the changes which are the evidence of life. As a necessary corollary of this view of life, we look upon disease, not as a disturbing element, introduced into the blood or the tissues, but as a disordered condition of structure, sometimes produced, it may be, by the introduction of morbid material, often without

^a Michaelis (Prager Vierteljahrschrift, 1853) has supplied this missing link, by showing that ammonia is developed during the oily metamorphosis of albuminous tissues. Simon in Holmes' System of Surgery.

such introduction, but always of more importance than any such material virus; and to be treated by medicines and means, such as will enable the natural excretory organs to eliminate the dead or disordered tissue, and not by drugs, which are to act as direct or chemical antidotes to a poison.

Hence, for example, in syphilis, the use of mercury, where it is used at all, is modified materially by these views. Men, at least sensible men, do not now deluge their patients with mercury as a specific, which is to circulate through the capillaries, or enter into the tissues and annihilate a syphilitic virus where it meets with it—a doctrine propounded not many years ago by some of the ablest teachers in the land; but they give it, even when they rely too exclusively upon its powers, as an eliminator of dead or disordered, or enfeebled tissues. No doubt there are forms of the disease in which it surpasses all other known excitors of the eliminating organs (such, for example, as congenital syphilis), but for all that, it is year by year more universally acknowledged that other means will cure the primary disease, and that mercury cannot insure immunity from secondaries, no matter how carefully and to what extent it be exhibited: hence the inevitable conclusion that it is not an antidote in the old sense of this term; and so with other diseases and other remedies. As the former cease to be looked upon as entities, so the latter cease to be regarded as specifics. Such advances in pathology then are not to be despised, seeing that they open the way for sound principles of treatment.

A pregnant source of progress in modern surgery (and medicine) is to be sought in the tendency of men to individualize disease. As the functions and forms of life are found to present as many aspects as there are individual men, so are the disordered functions and forms of disease; families, and groups, and classes, may be made for the convenience of instruction; but year by year the great truth is more widely recognised, that diseased action is as diverse as man; and the results which spring from this truth are of immense and wide-spread importance.

Two causes seem principally at work in the production of this view of disease. The great extent and accuracy of microscopic investigations, and the increase of medical journalism. As, in many other great changes, the agents who have brought this about may have been, to a great extent, unconscious of the tendency and effects of their labours. Thus, some five years ago, a grand controversy raged in Paris on the subject of microscopic investigations, and if we were to judge of their value by the conflicting opinions which were then evoked, or by the absence of any definite formulæ as their recognised result, we should be obliged to conclude that their contributions to science had been uncertain, and that their practical importance was of the very smallest amount. And yet how many errors, and, what is of more importance, how many sources of

error were discovered and got rid of by this discussion, how firmly it enabled us to grasp the truth, and to wield it for future use. Many hasty generalizations—many crude and ill-digested speculations—many theories founded on a too narrow basis, or resulting from incorrectness in manipulation, were here disposed of, and, when the angry tide of debate had ebbed, men's minds settled down to realize the true results of the discussion.

The most important of these was the infinite variety of morbid growths, a striking example of the individuality of diseased action. Discoverers are always apt to generalize too soon and from too narrow premises: hence the microscopists of the previous decade laid down with too great rigidity the characters of morbid cell-elements; the cancer cell, for example, was not only characteristic of the growth in which it forms the principal element, which is true, but it was heteromorphous, foreign to the body, of parasitic, or at best unknown origin. Each successive observer of the structure of tumours has pointed out peculiarities unnoticed before, and perhaps has founded a new species or variety of growth, insisting mainly, it may be, upon the differences between what he has seen, and what others have put on record as the results of their observations. Gradually the varieties are so multiplied that the shades of difference between them become less and less broadly marked, and men's minds suddenly open to the conviction that these numerous peculiarities point to a common origin, modified by individual influences.

The expansion of medical journalism is connected also with this increasing tendency to individualize disease. Whether as cause or effect may be a matter of opinion. Certainly there is a constant stream of cases and observations ready to fill the pages of every journal, and each writer strives for originality, or at least for some peculiarity in the cases he records.

As before remarked, there is a wonderful convergence of opinion on the common origin of morbid products. We find independent observers, who had followed different routes, arrive at the same conclusions.

Virchow, for example, in page 445 of the already quoted work, when speaking of the origin of pus, says:—"If now, in the next place, we investigate the history of suppuration, we immediately discover that we must distinguish two different modes of pus-formation, according, namely, as the pus proceeds from tissues of the first two kinds mentioned in our classification, *i.e.*, from epithelium, or from connective tissue." He had previously spoken of the origin of the former from the latter, so that ultimately the pus cell would derive its origin from the connective tissue corpuscle; further on he shows how—"deeply-seated pus-formation regularly takes place in the connective tissues. In it there first occurs an enlargement of the cells, the nuclei divide and for some time multiply exceedingly," &c., &c.

Again, speaking of tubercle, he says (p. 94) :—"If the development of these corpuscles be investigated, it is easy to convince oneself that wherever they occur they arise out of previous organic morphological elements, and that they are not by any means the first bungling products, unfortunate essays of organisation; but that they were once well-grown elements, which, by an unhappy chance, were early checked in their development, and early succumbed to a process of shrivelling. You may with certainty assume that where you meet with a largish corpuscle of this description, a cell had previously existed; and where you find a small one, there once had been a nucleus, enclosed, perhaps, within a cell. . . . I am of opinion that tubercle is necessarily of a cellular nature, and generally, just like all new formations, has its origin in connective tissue."

Again, not to be tedious, in page 454, he has a figure which represents the development of cancer from connective tissue in carcinoma of the breast, showing the various stages of the process in the division of the nuclei, then of the cells, their grouping together and enlargement. He also asserts similar stages in the development of cancer, canceroid, and sarcoma.

Here we see the ablest foreign microscopist and pathologist of the day deriving the principal morbid products from one common element—the connective tissue corpuscle. Let us now see how our greatest British authority treats the same subject:—

"One cannot but conclude that the cells of pus from wounds are ill-developed or degenerate granulation cells. . . . The many characters of imperfection or of degeneracy that pus-cells show accord with this view; such as the general imperfection of their nuclei; the frequent abundance of fatty-looking granules in them, the large quantity of fatty matter that analysis detects in pus, and the limitation of the cells to certain forms, beyond which they are never found developed, though none of those forms is more highly organised than that of the youngest or most rudimental granulation-cell."^a

It is strange that one who could speak so plainly of the parentage of the pus globule should not have perceived the affinity of tubercle and of cancer to the same elementary cell; but he goes close to it with Schröder Van der Kolk, whom he quotes, as referring pulmonary tubercle to the degenerate epithelium of the air cells.

Dr. Wilks,^b in a paper on cancer and new growths, expresses his opinion that these have their origin in a "purposeless effusion of blastema," which material, in healthy subjects, would become organised for repair or healthy growth, but in the unhealthy is converted into unnatural forms. He boldly proclaims both the local origin of cancers and the influence of

^a Paget's Lectures on Surgical Pathology, Vol. i., p. 233.

^b Guy's Hospital Reports, Vol. iv.

the constitution of the individual, but in terms too diffuse for quotation.

If I venture to introduce into such distinguished company the words of one who claims to be only a diligent observer of the microscopic elements of tumours in connexion with their clinical history, it is because they express what, as regards this branch, seems to be the result of the labours of microscopists in the past decade:—

“Of growths which are not cancer, but which equally with it have their origin in the lymph-cell, and are interstitial or infiltrating, there are almost as many varieties as there are cases. After reading most of what has been written about them, and having seen a good many, I am satisfied that this whole class may, for practical purposes, be included in the following formula:—‘*The nearer in form and power of development that the constituent cells of a tumour are to the healthy lymph-cell, the more innocent is the tumour: the further removed, the more destructive.*’ Thus we find the healthy lymph-cell small, circular, slightly granular, with a little nucleus, and developing into a fibre. Our simplest tumours are composed of cells, scarcely, if at all, to be distinguished from the above; and these white fibrous, or desmoid tumours, are the most innocent possible growths, as a general rule. A stray exception may occur, now and then, to prove the rule. We then come to fibroid, fibro-nucleated, recurrent fibroid, fibroplastic, fibrinous tumours, named according to the fancy of writers, who recognise alike their similarity to simple fibrous tumours, and their divergence from them. These are of variable malignancy; they are of as variable minute construction. Not only do their constituent cell-elements differ more or less in form from the primary lymph-cell, but they also differ in power of development. Some remain always as cells, and never develop into fibres; these are the most recurrent. Some make attempts at development, and hence the caudate cell of various form; some appear only as nuclei, without external cell-wall. Again, power of development into fibrous forms is quite different from active reproduction; generally it is not associated in the same cells. The recurrent tumours are masses of rapidly produced cells, or nuclei, with no attempts at the formation of fibre.

“Cancer itself can be brought under the above law. It is no heterologous or parasitic formation. It is simply a monstrously abnormal plastic growth; its cells differ as widely as possible from the healthy type. In acute cases they are rapidly produced, make scarcely an attempt at development, and die off with rapidity; in schirrus they are formed more slowly, and in much smaller numbers, live longer, and make some attempt at caudation, but they are still further removed in form from the typical cell of healthy tissues.

“The more I think over the subject of morbid products, the more I am convinced that, in the above formula, we have the expression of a law

that includes most of their phenomena. It will, slightly modified, apply not only to large classes of tumours, but also to tubercle and to pus. Tubercle is a lymph-cell, of low vitality, incapable of development into healthy fibre, dying after a short existence, and generally becoming a foreign body. Pus may be described in words almost identical—their material difference being one, probably more of chemical constitution than of vital power—for both are possessed of almost a minimum of vitality. Tumours are composed of cells whose vital force is greater than pus or tubercle; and this vital power is rather spent in reproduction than in development, as in the healthy cell. The ordinary plastic cell goes through certain phases, dies, and is removed; its place is taken by a new cell, developed, probably, from the nucleus of its predecessor. The abnormal cell fails to arrive at perfection, often becomes a monstrosity, and has a tendency not only to reproduce itself from its nucleus, but to generate, in neighbouring lymph, organisms similar to itself. Thus the constituent cell of the tumour has a certain independent vitality, similar to that of the entire tumour; or rather the converse is true—the tumour is composed of cells of independent vitality, and hence it possesses the same form of life with the cell. And, as the life of the cell is of a low type, so is that of the tumour. I cannot but think that many of the able minds which have been engaged in studying cancer, in its minute anatomy, have failed to make an adequate impression upon practical surgery, because they have been led away to look on cancer as a thing quite different from any of the ordinary structures of the body, instead of a perverted form of a natural structure. And I am sure that their views, carried out to their legitimate conclusion, would lead us to despair of any remedy for cancer but the knife, or other agents of destruction. Whereas, if we regard the cancer-cell merely as a perverted lymph-cell, we shall never rest until remedies are found which will influence it—i. e., the lymph-cell—to a more healthy type.

“I am sure we neglect too much the auxiliary treatment of good tonics, especially mineral tonics, good air, and abundant food, with proportionate exercise; and we should have slower tumours, and fewer relapses, if we compelled the attention of our patients to these matters.”^a

These various extracts indicate a common direction of thought in their authors, and help to prove the proposition that, the result of pathological studies during the past decade has been the recognition of a common type for forms of disease, which had not been clearly recognised before. The consequences of this recognition must be to simplify much that was obscure or confused. The entire range of inflammations, whether simple, strumous, or rheumatic, together with all tumours, innocent or destructive, are shown to have as their *point de depart* the same cellular element; and

^a On Cystic Disease. By Maurice H. Collis. Dublin Quarterly Journal, Nov., 1860.

however various the immediate change may be which is thus produced on the typical cells, it is not a little remarkable that the mode of their death is the same, whether they have run their course as lymph, pus, cancer, or tubercle—namely, oily metamorphosis.

The student who would follow out the whole series of fatty degenerations, the result of inflammation, will find a clear and simple statement of them in Mr. Simon's paper on inflammation, in *Holmes's System of Surgery*. Some parts of this essay are so important, as condensations of our present state of knowledge, that I cannot refrain from quoting them:—

“Let the student examine inflamed muscle, as for instance, in the *post mortem* examination of a compound fracture, or of a recently made stump. He will find the structure weakened, so that it easily gives way with pressure or traction; he will see, under the microscope, that the substance tends to fall into irregular fragments; that its natural striation is more or less replaced, first by an almost homogeneous appearance, and afterwards by an appearance of aggregated granules; that, with these granules of albuminous matter, into which the muscle has resolved itself, there is mixed, even from an early date in the inflammation, a noticeable quantity of oil drops; that often these oil drops appear before the disintegration of muscle has made much progress, and then arrange themselves in such mutual relation, transverse or longitudinal, as to suggest that the sarco elements have changed themselves, particle by particle, into oil; that, little by little, the oil drops multiply to such an extent as to be the chief visible objects; the limitary membrane of a fasciculus seeming now to be almost filled with finely divided oil, diffused through some scanty connective albuminous material; that the limitary membrane, within which the muscular tissue is thus emulsionized, tends also itself to undergo dissolution, and let its proceeds confuse themselves with the similar debris of neighbouring fasciculi, till more or less bulk of muscle is reduced to a state of oleo-albuminous liquidity, and from this point, if the observer have the opportunity of watching the changes which lead to convalescence, he will see that gradually the liquified material diminishes in volume; that, in proportion as it vanishes, the adjoining parts adapt themselves to the altered relation; that eventually only a scar-like puckering of substance remains to mark the place where muscular material has irrevocably melted away.

“Let him examine inflamed bone—as for instance, in a carious vertebra; he will see that the structure breaks down under his finger, and offers scarcely any resistance to a knife, that the microscopic texture is rarified—cancelli, canals, lacunæ, being all larger than natural, and the solid framework all scantier; that the material is tending to break into its component parts, and to undergo changes, which admit of its being removed by the circulation. In many cases, (for example under the irritant pressure of an aneurism), he will find that a quantity of bone has

thus gone, leaving no trace behind—gone, of course, only after having first become liquid; and it appears that when bone is inflamed, the first step towards this disintegration consists in a breach of the ordinary union between the mineral and cartilaginous constituents, with a primary removal of the former and a chemical change of the latter. If there be discharge from the inflamed part, there will be found in it bits of bone, chemically and microscopically demonstrable.

“Let him examine inflamed nerve; he will find the medullary cylinder of each nerve-tubule falling, as it were by cross cuts, into irregular pieces, at first large, but as the process advances, getting smaller and rounder and assuming the character of oil, till at last the tube-membrane is filled with oily material which gradually undergoes removal.

“Let him examine the hard texture of an acutely suppurating joint; he will find the strongest ligaments in course of being reduced to an incoherent state—either actually pulpy and half liquified and in course of removal, or ready to break with the least traction; he will find, unless proper splintage have been used to prevent it, that dislocation is occurring from this cause; he will find, if the inflammation have been primarily synovial, that the cartilage is smoothly melting away at its surface, into the fluid which bathes it; or if the disease has begun subarticularly, that the cartilage, where superjacent to carious bone is irregularly eroded and perforated; and throughout, with the microscope, he will find, wherever there are evidences of advancing disintegration, that the softening material is abundantly marked with oil drops.”

It would be tedious, in such a retrospect as the present, to go with a great minuteness into the various modes of fatty or oily degeneration which affect all morbid cell elements. The principle is the same in all—namely, that when the life of a cell is over, chemical force takes the place of vital, and the gradual dissolution of the cell commences.

I must pass on now to consider how far these sound principles of pathology, which the last ten years have evoked or confirmed, have already borne fruit in practice, and to eliminate what seems to me of permanent utility from the copious suggestions with which our medical literature abounds.

SYPHILIS AND GONORRHOEA.

Is Andral's dictum true, that syphilis is so systematic, so symmetrical, that it may serve as a key to all pathology? Let the following aphorisms, culled from the works of the last ten years, answer:—

Blennorrhagia and chancre are two affections entirely distinct.—*Ricord, Egan, Acton, Labatt, &c.*

The venereal virus produces two principal results—1, a local inflammation (blennorrhagia); 2, a form of ulceration (chancre).—*Vidal de Cassis, after Hunter, &c.*

Blennorrhagia is a local inflammation, *Ricord, Vidal, &c.*, and never gives rise to constitutional syphilis.—*Ricord, Porter.*

The matter of a virulent gonorrhœa may produce abrasions, and be followed by mild cutaneous eruptions.—*Egan, Vidal, Baumés, Requin.*

A non-indurated chancre is always a local disease, and is never accompanied or followed by secondaries; the bubo resulting from such a sore is suppurative.

An indurated chancre is the evidence that the venereal virus has poisoned the system, and has returned to the sore. The gland resulting from it is indurated.—*Ricord, Acton, Montanier, Maisonneuve, &c.*

A mild form of constitutional symptoms may ensue after a simple primary (non-indurated) sore.—*Egan, Labatt, &c.*, after *Carmichael.*

Every form of primary disease may be followed by constitutional affections, the nature and duration of which no one can predicate.—*Holmes Coote.*

Where phagedæna is the primary affection, secondary symptoms may not arise for ten or fifteen years.—*Ibid.*

The peculiar danger attending indurated chancre arises from its being obstinate and chronic in its course; the longer the primary disease remains, so many more are the chances of constitutional affection from absorption.—*Ibid.*

There is no regular interval between the introduction of the poison and the development of its effects. There is often no attempt at its elimination, either by the formation of a bubo, or by eruption, or by fever; there is nothing periodic or critical in the character of the disease; it never wears itself out; it never recovers or subsides spontaneously; and though the virulence of the disease may abate and the symptoms disappear, it leaves the patient as deeply poisoned himself, and as capable of conveying the virus to others, as he was before. Finally, one or any number of attacks of lues, will not protect him from future contamination.—*Porter.*

It appears to me that the poison, in general, wears itself out, except in the very severe cases.—*Holmes Coote.*

Elimination of the poison by the skin is the natural method of cure.—*Weedon Cooke.*

A man who has once had an indurated chancre can never have a second. Inoculation from any source in such a man will only produce non-indurated sores.—*Ricord.*

Syphilization is a state of the organism in which it will no longer evolve the syphilitic virus, in consequence of a state of saturation.—*Auzias de Turenne.*

Syphilization is undoubtedly useful against syphilis; it is the only certain remedy that we know, and it is not pernicious to the organism mercury, therefore, ought to be banished as a curative remedy.

Syphilization is not so certainly useful against mercurialized syphilis

but it ought always to be tried; it often does cure it entirely, and it at least does not fail to do some good in the greatest number of cases.—*Boeck.*

I believe *mercury* to be a specific for syphilis.—*Porter.*

It is a doubtful question whether mercury is a remedy at all for syphilis. In my opinion it would be wrong to give a hundredth part of a grain of mercury to a syphilitic person who had not been before mercurialized.—*Boeck.*

Of 300 cases of secondary syphilis, who were treated by syphilization, 290 were cured.—*Ibid.*

The true explanation of cures by syphilization is the abstinence from mercurial treatment, and the eliminating power of nature.—*Weedon Cooke.*

A chancre is the only source of syphilis.—*Ricord.*

The semen of a diseased man may infect the woman with whom he may have connexion, even though she never become pregnant.—*Porter.*

Pus from a primary affection is the only contagious element in the disease. It may be secreted by the skin, by a lymphatic vessel or gland, and the ulcer which supplies it may be simple, indurated, or phagedænic. No secondary or tertiary affection is capable of being communicated by contagion.—*Ricord.*

That mucous tubercles may be transmitted is generally acknowledged. *Vidal.* But mucous tubercles are often a primary affection.—*Ricord.*

The blood of a patient with secondary syphilis has produced tubercular and pustular eruptions, when introduced into the system of a healthy patient by inoculation.—*Waller of Prague.*

I have great reason to believe that in many of the cases, where a nurse is said to have contracted syphilis from suckling a syphilitic child, the disease has been merely *thrush*. This appears to me partly to have been a source of error in Ireland!—*Acton.*

A woman who has never had a chancre, but who has constitutional syphilis, may bear a pocky child, who may infect the nurse.—*Porter, Diday, Vidal, Waller, &c.*

A child may be affected *in utero*, but once born, only by direct contagion; at least poisoning through the milk of a syphilitic nurse is not proven. Equally unproved is the contamination of the nurse by a child which has not primary sores.—*Ricord.*

Many more opposing aphorisms might be accumulated, if necessary, for my purpose. This is to point out how impossible it is to dogmatize on the subject of syphilis in the present advanced state of pathological knowledge, without meeting with an opposing truth, no matter in what direction our prejudices or imperfect observations may lead us.

Varieties of Primary Syphilitic Sores.—The opinions of Ricord, Porter, Lee, Weedon Cooke, and many others, all tend to recognise the individual

as the modifying agent of the poison; and such must manifestly be the truth. Dissecting wounds affect the system or not, according to the state of health of the individual, and syphilis has much in common with them. The sanguineous man will develop an active inflammation, with a tendency to soft chancre and suppurating bubo; the man of languid circulation, on the other hand, has a tendency to chronic induration, both local and glandular. The whiskey drinker is notoriously subject to phagedæna, whether ulcerative or gangrenous. Each, according to his natural temperament, or temporary condition, has power to modify a poison which, of itself, has been modified by the source from which it was derived.

It is manifest that contagious disorders acquire virulence of action by concentration and rapidity of circulation. An epidemic is modified by a hundred circumstances; and syphilis, as any other contagion, is equally subject to continual alterations. It is no mathematical quantity of unvariable value, but an ever fluctuating power which it requires much calculation to determine. Like all other diseases, it is not an entity but a condition, and the minds of men should no longer be diverted from the due recognition of this fact, by the circumstances of the system coming under its influence through the operation of a virus.

Its modes of action are reduced by Lee to four, namely,—Adhesive, Suppurative, Ulcerative inflammation, and Mortification, the first only being followed by constitutional symptoms, and requiring mercury. His views are given at length in *Holme's System of Surgery*, to which we must refer our readers.

Of Improvements in Treatment.—The principal is the reintroduction of mercurial fumigation, long since recommended by the late Mr. Colles, whose cinnabar candle was well known to us as students. Mr. Langston Parker^a has been the steady supporter of this plan of treatment for upwards of twenty years. It is now in very general use in London; combined with the vapour bath, it is an admirable mode of bringing the system under the influence of the medicine. Syme holds that the mineral should be used only as an alterative and absorbent, in which view he is followed by most people, only that some hold that it may be pushed until it touches the gums without interfering with this mode of action.

For my own part, I would use it for syphilis as for any other complaint, regulating the amount and frequency of the dose according to the circumstances of each case, and, as Mr. Porter used to say, according to the apparent strength of the patient.

Inoculation.—On the subject of treatment by inoculation, many of the contradictory statements and many fallacies are got rid of, if Mr. Porter's

^a Reviewed in our August Number.

law be anything like universally true—that the poison will not return on itself. As a means of cure, inoculation is acknowledged to be uncertain, even by Boeck, whose statements go no further than to show that after its use the disease ceased to manifest itself externally. Here we should have the test of power to propagate healthy children, before we could admit that a cure was proved. Syphilization, as a means of cure may, however, be allowed to die a natural death; and as a means of diagnosis, Mr. Porter's law shows it to be of no practical value, for in doubtful cases no one would try the question by syphilizing what Ricord calls a virgin subject. No doubt, laws are not absolute, being, after all, only the expression of the experience of one or more men on certain points, but they are of great negative value.

In the physiological history of inoculation, Ricord has developed many points of practical interest, such as that the period of incubation is in proportion to the depth to which the poison penetrates, and that for the production of a chancre, an abrasion is necessary. This is, however, denied by Labatt. Ricord also points out that chancres only poison while progressing as chancres, or at least when not healing. We must caution the readers of his letters against confounding his *ulcère élevé* with our elevated ulcer; the former being an ulcer with raised edges, the latter with elevated fungating surface.

For Tertiaries, an addition to our treatment is given by Gamberini, of Bologna, in the form of iodide of sodium, the advantages of which are stated to be, that it is better borne by the stomach, and has a more agreeable taste; that it has for its basis a salt which is a normal constituent of the body, to a large extent, and that it produces less iodism. We can here only refer to the interesting remarks of the same author, on the truces of syphilis, in the 17th volume of this Journal.

Gonorrhœa.—The treatment of this affection has varied little in the past decade. The local nature which is all but universally ascribed to it, has led more men to treat it by simple local astringents. It gradually passes back along the urethra, and if it can be cut short before it reaches the sinus pularis, epididymitis will not come on. Dr. T. Chambers^a believes even that it will get well spontaneously, from two to three weeks, if let alone. It may be observed, that in all inflammations, local remedies must be applied weak and often while the action is acute; strong and seldom when it is chronic. This should be followed out in gonorrhœa: two grain solutions of alum to be used every half hour in acute cases, and in chronic, a drachm or two to the eight ounces—used twice or three times a day. In the intermediate stages, intermediate strength and frequency of injections, in an inverse ratio, should be adopted.

^a *Lancet*, June, 1861.

So in *gonorrhœal ophthalmia*, a half grain solution of nitrate of silver applied every half hour will almost invariably cut short the disease in 24 hours. Carefully carried out it will scarcely ever fail.

The following law is capable of wide application, both in inflammations, internal and external, and for the exhibition of many medicines. *The more acute the diseased action, the weaker and the more frequently applied should our remedy be; the more chronic the action, the stronger and less frequently applied.* In recommending injections as sufficient to cure gonorrhœa, it is not intended to exclude the use of such general treatment as may seem necessary, such as purgatives, antispasmodics, tonics, &c., but the use of the nauseous and disgusting cubebs, copaiva, or terebinthines, may be altogether dispensed with.

Mr. Weedon Cooke, Mr. Borlase Childs, and Mr. Warner^a corroborate the value of injections above all other treatment. Their favourite astringents are the chloride of zinc, perchloride of iron, and solution of the pernitrate of mercury; more especially the last, at the strength of half a minim to the ounce of water. Cures are said to have been effected by the last after six injections, and the disease seldom exceeds 10 days in duration.

MM. Caby and Moulson^b speak highly of bismuth as an injection. The bismuth to be well washed; and 20 parts are to be mixed with 200 of distilled water.

In *gleet*, Adams recommends the use of five grain doses of Chian turpentine, its action being upon the follicles and ducts of the prostate. Muriate tincture of iron and tincture of opium will often render the discharge in such cases somewhat purulent, when injections will effect a cure.

DISEASES OF BONES AND JOINTS.

What is new and proven on this subject is well condensed in Mr. Barwell's book.^c The views of Virchow on the nature of inflammation, as a hypersecretion in the first instance, are supported.

Synovitis is shown to be from the first accompanied by increased moisture. Dr. Fuller, following Todd, attributed the rheumatic tendencies of fibrous tissues to a peculiar attraction which he supposes them to possess for lactic or lithic acid; but seeing that the decomposition of these very tissues will produce lactic acid, it is more reasonable to attribute the presence of the acid in the blood and in the tissues to such decomposition, and not the decomposition to the presence of the acid; such is Barwell's view.

Cartilage.—Brodie's ancient theory, that the cartilages are the seat of active vascular inflammation, has gradually been subverted; first by

^a *Lancet*, Oct. 12, 1861.

^b *Medical Times and Gazette*, June, 1861.

^c Barwell on Diseases of Joints.

Aston Key, then by Richet, Ecker, Goodsir, Redfern, Birkett, and Bryant. The reaction of opinion, as usual, was excessive, and all changes in cartilage were ascribed to atrophy, in consequence of the proved absence of all vessels in its structure. The proliferation of cartilage cells from inflammation, laid down by Virchow, is claimed as a discovery by Barwell; probably both arrived at the same conclusion by independent reasoning. He shows, with Virchow, that ulceration of cartilage depends upon fatty degeneration, and that true inflammation of cartilage consists in a hypersecretion of the cells; he denies that the latter occurs as a primary affection; it is for him always a result of synovitis or osteitis, but it is no less an active process, partaking of the nature of inflammation in other structures, in that it is characterized by increased activity of production.

Osteitis.—Mr. Erichsen has done good service by drawing attention to the fact, that in disease of the tarsus the bones are primarily affected, the joints remaining free until a later period. Osteitis, and not synovitis, is to be combated: hence, as he advises, excision of the individual bone or bones should be done. I have found free incision into the body of the bone equally useful in some cases; these bones are peculiarly liable to congestion, which runs on, if unchecked, into suppuration and caries; they rarely become necrosed, and a free and timely opening may cut short the process of destruction. Mr. Barwell has pointed out a similar fact as regards the articular ends of long bones in children, which accounts for the readiness with which joint inflammations light up in early life. The growth of the bone takes place mainly, as is well known, at the epiphysary junction: hence, there is a permanent and normal hyperæmic condition of the bones at this point as long as active growth is advancing, and it needs but some trifling cause to increase hyperæmia to congestion, and when congestion takes place, either active inflammation may quickly come on, or a low state of nutrition be induced, which will run into strumous osteitis, and the whole train of chronic disorganization of the joint. Klose^a and Chassaignac^b describe as something new that formidable inflammation of the shaft and ends of the large bones which we have long known in this country as complete acute necrosis, where the entire thickness of the bone perishes suddenly from inflammation, frequently destroying the life of the patient, as well as his limb. Klose had seen the disease in the young in whom it is more common, for the reason already given; Chassaignac had seen it in older patients; Gosselin points out their identity, and names it acute suppurative epiphysary osteitis. Instances of the disease have fallen under my own notice in the shoulder and in the knee, destroying the limb, and ultimately the life in the latter

^a Prager, Vierteljahrschrift, Jan., 1860. Epiphysentrennung or Meningo-Osteo-Phlebitis.

^b Monograph sur L'Osteo-myelitis.

case, and only stayed in the former by very free incisions down to and along the bone; on a small scale we see it in paronychia osseosa of the nail-phalanx, or bone-felon as it is termed by the Americans.

Morbus coxæ.—Rust, of Vienna, asserts that osteitis is the invariable starting point of hip disease. No doubt this is true of chronic morbus coxæ, whether strumous or rheumatic, but the acute disease is clearly synovitis; the great width, depth, and fulness of the gluteal region, the swelling and tenderness in the groin, and behind the trochanter, the marked increase of heat, great pain on motion, and, above all, the very rapid destruction of the joint, all prove that the synovial membrane and softer tissues are primarily engaged.

Mr. Smyly has drawn attention to the fixity of the joint in the early stage of chronic disease, as evidenced by rotation of the entire pelvis taking place on the sound joint when the affected limb is grasped and rotated; as a means of diagnosis, in doubtful cases, this manœuvre is positively invaluable.

The rarity of dislocation on the dorsum of the ilium is recognised by all writers, upon the subject of hip disease, in the last decade—the symptoms supposed to be characteristic of it being attributable to absorption of the head and neck of the os femoris, and to expansion of the acetabulum. Tessier,^a of Lyons, asserts that prolonged immobility of a joint may not only aggravate existing disease, but produce various lesions in a joint previously healthy, so that five or six months' perfect rest sufficed to destroy the synovial membrane and cartilages. Hilton^b in delivering his admirable lectures on pain, gave a striking contradiction to this statement, by exhibiting the cramped and unused foot of a Chinese lady, in which the articular surfaces had remained uninjured under the strongest possible pressure and the most absolute immobility.

Treatment.—A combination of nitrate of potash and antimony is recommended for acute synovitis in strumous patients, in place of mercury, by Barwell. In the use of leeches lowering the patient should be guarded against, for unquestionably suppuration follows their use when pushed too far. In fact, in any case of acute inflammation such a result may occur, and if it be wished to favour the formation of matter, it can often be done by grouping a few leeches over the spot where this result would be advisable.

In addition to the chlorides for purulent infection and deposits in joints, the hyposulphites have been vaunted. Polli recommends the sulphites either injected into the veins or internally administered in cases of this kind, and in all diseases arising from an animal ferment—but this has yet to be tested.

^a Coulson in *Lancet*, April, 1854, and Braithwaite, Vol. 30.

^b Published in *Lancet*, November, 1861.

The advantages of free incision into joints which are full of pus and shreds of cartilage, were laid down, just ten years ago, by Mr. Gay,^a he showed the inadequacy of sinuses for free discharge of these products of destruction, and pointed out the reparative power of joints when freed from their presence. In this he was seconded by Adams of London, Brodie, and now by Barwell. Subcutaneous section in hydrarthrosis, practised by Goyrand, seems to have met few followers; nor have Velpeau and Bonnet's injections of iodine. Some good cases of the latter are given by Dr. Mc'Donnell of Montreal,^b but we have not found reason to use it in Dublin; as firm pressure, with cold or stimulating lotions, generally reduces the swelling to reasonable dimensions, and Scott's stimulating strapping does the rest.

For chronic synovitis, as well as for the more medical ailments of rheumatic gout, the Turkish bath is of essential service, as are also the various modifications of hot air and vapour baths.

As remedies for the pain in strumous joints, Jobert de Lamballe recommends an ointment of from one to three drachms of nitrate of silver to the ounce of lard. This acts as tartar emetic ointment does, by producing an eethymatous eruption. Veratrine ointment is recommended by Klinger.^c The actual cautery is highly praised by Syme, and recommended with all the persistence and energy of that able surgeon. Barwell speaks disappointedly of it. The danger is, undoubtedly, lest it should become an irritant instead of a counter-irritant. Lebert speaks highly of the douche, in the later stages of cure, as a stimulant to absorption of plastic deposits. Coulson advises it for hyperæmic and congested condition of the epiphyses.

Solly places the greatest confidence in repeated issues in strumous joints, and states that he has almost invariably succeeded in obtaining either ankylosis or a useful joint by patient perseverance; as a proof of which, he has been called on to amputate for white swelling but twice during his long career as a surgeon.

Chronic Rheumatic Arthritis.—The writings of Robert Adams and R. W. Smith on chronic rheumatic arthritis have been so long before the profession, and are so well known, and highly appreciated, that we have not thought it necessary to refer to them on the present occasion. The splendid monograph of the former surgeon has exhausted the subject.

EXCISIONS OF JOINTS.

“Removal of a joint may be called for to save life in the height of an acute disease, to cut short the wearing process of a chronic and incurable

^a Paper read before the Medical Society of London—Med. T. & G., Vol. 24.

^b Montreal Medical Circular, 1857.

^c Dublin Hospital Gazette, February, 1854.

disease; to rid the patient of a deformity and encumbrance."^a In deciding on operation, and *mutatis mutandis*, in making the choice between excision and amputation, "the most essential questions are:—Is the patient's constitution capable of ultimately conquering or healing the disease? If so, will the limb be of value or an encumbrance? In his worldly circumstances is it possible for him to await a long, and, perhaps, a doubtful process of cure?"

Now, in the first place, as regards acute destruction of joints, as a rule free incisions will save us the necessity of either excision or amputation. Where they will not do so it is because the cases run into the category of chronic disease.

As regards chronic disease, the rule will be different for the child and for the adult. Children have great powers of recovery, both local and constitutional. Many a condemned limb has and can be saved by patience. If operation be clearly necessary, it must be remembered that after either excision or amputation in the child, the remains of the limb are dwarfed and withered as compared with the sound limb. This point is set at rest by Pemberton^b and Syme^c as regards excision. A writer in the *Lancet*^d states that it is equally true as regards amputation, and Mr. Humphry's paper in the *Medico Chirurgical Transactions* for 1861, explains the reason. He finds that the growth of a long bone takes place at its epiphysial lines, generally, with unequal energy; and that the growth is greater at the end where the epiphysis is last to unite, which is generally the larger end. He finds, also, that the growth of a stump is not usually proportionate to the rest of the body, and is least so, when the more quickly growing end of the bone has been removed.

Yet we cannot accept as sufficiently conclusive the statements of Messrs. Humphry, Price, and Butcher, that, by confining our resection to a portion of the epiphysis, we shall not interfere with the growth of the limb. For Mr. Syme's experience disproves the statement.

Again, it is impossible to know beforehand how much bone may have to be removed. When a thin slice is cut off, another and another may be found necessary, until it is cut far beyond the epiphysial junction.

If the statistics we have be full and honest, their result is, that, as regards life, excision is, for all joints, a more favourable operation than amputation; but it is greatly to be feared that many of the unfavourable cases have not seemed to those who have had them to present sufficient points of interest for publication. For diseases of the ankle, elbow, and shoulder, excision is now confessedly to be preferred to amputation. As to the wrist, knee, and hip, the fullest attainable information is necessary

^a Barwell, *op. cit.*

^c *Pr. of Surgery.*

^b *Br. Med. Jour.*, 1859.

^d *Jan. 14, 1854.*

for the formation of any decided opinion. Heyfelder,^a in his admirable and laborious work on resections, gives very full statistical tables on the subject, up to the latest date.

Wrist.—The results here are as follows:—Total resection of radius, ulna, and carpal bones, 14 known cases, 1 death, 9 successful results, 3 partially so; of partial resections, 35 known cases, 8 deaths, 26 successful results. The cases of this excision are so few that it is not advisable to make a separate table of those operated on in the past decade. It may, however, be remarked that most of the total resections come within that period.

As regards excision of the wrist joint for caries, there is a tendency to relapse and ultimate failure, which, from the nature of the case, is unavoidable. Both the number of the small joints and the multitude of tendinous sheaths, which must necessarily be opened, predispose to burrowing suppuration. The tendons and their sheaths may be avoided by making the incisions longitudinal, but the operation, in such case, will be troublesome and tedious, and if the disease is extensive, these incisions will not suffice. When such operators as Fergusson, Simon, &c., have to put on record repeated and unsuccessful operations, and when, to come nearer home, Mr. Butcher, who has so distinguished himself as the champion of excision, is obliged to be satisfied with fingers permanently flexed, as the best result of his well-planned operations, it can only be concluded that the operation is of exceptional application, and of more than doubtful result. Where it is not possible to execute it by longitudinal incisions, Mr. Butcher's modification of the transverse incision, by which the muscles of the thumb and their tendons are spared, is of great value, as assisting in retaining a useful amount of motion in the thumb.

Knee.—Of total resections of the knee, 183 cases are collected by Heyfelder, from Filkin's first case, in 1762, to the end of 1859. In the last ten years there have been 146 known cases, 37 deaths, 17 secondary amputations (of which number all but one recovered).

The results as regards use of the limb are—

- 1 with limb bowed at the knee.
- 1 fibrous union only.
- 4 condition unknown.
- 10 still under treatment, progressing favourably.
- 76 result given as good in various degree.
- Pyæmia and tuberculosis were the chief causes of death.
- The results, then, are 1 death in 4, or 25 per cent.

From these numbers let us now deduct all who were operated on under the age of 15.

There were 38 such cases, the particulars of which were more or less known.

^a *Operationslehre und Statistik der Resektionen.* Von Dr. Oskar Heyfelder. Vienna, 1861. Reviewed in the last number of the *Journal*.

Five of these died, and four were subjected to amputation. In one instance an infant of two years of age was subjected to this operation! it died.

Comparing the statistics of the operation during the past ten years with those of the previous period, from 1762 to 1851, there appears a decrease of 50 per cent. in the rate of mortality. One-half of those operated on died in the early period. Jones' operation in 1851 marks a new era. Heyfelder's tables are not absolutely complete, but they are the best available at present, and probably give as true an account as can be expected from statistics.

There are a few cases of partial resection of the knee joint, but they present no material feature. As regards the mode of operation, Mr. Butcher's papers on the subject in this Journal, leave little to be added. He prefers the H incision, and now recommends the removal of the patella. Hutchinson suggests to divide the ham-string muscles, in order to check the forward tendency of the femur. Few cases will require this, as, by attention to Mr. Butcher's suggestions, especially the adaptation of an anterior splint, this source of annoyance will be obviated. Another suggestion of Mr. Hutchinson's may deserve more consideration, namely, the making of a button-hole opening in the ham, in order to prevent lodgment of pus in the deeper parts of the wound. This gravitation of matter is a fertile source of disappointment—infiltration of the areolar tissue and diffused abscess, with destruction of the periosteum and extension of the osteitis—consequences which such an opening might help to prevent.

As to the selection of cases for excision, where operation is indicated, it has already been said that free incisions are the rule for acute suppurative destruction of the joints. Coulson denies the frequency of strumous disease of joints; if this be true, much more may be done by patience on all hands to avoid operation than has hitherto been effected, especially in children. No joint should be excised when there is reason to suspect purulent infiltration of the cancellated tissue of the bone to any extent. These cases are characterized by tenderness along the bone, by the ramification of blue veins over the joint, by a transparency and glossiness of the skin in the same situation; by gnawing pains, and a sensation sometimes as if the bone would break; by great want of power to use or bear upon the limb, and by a comparative absence or rarity of sinuses. Such cases are much better suited for amputation than excision, and unfortunately they are of frequent occurrence.

The model case for excision is the white swelling, which will not ankylose, or which, from receiving a hurt, is running on to a suppurative condition and threatening the life of the patient. There is a condition more frequently found in the wrist and elbow than in the larger joints, viz., where the disease is limited by a cup of plastic material, that

becomes ossified and imparts a sensation of increased thickness and hardness, without tenderness; this condition, in the vast majority of cases, will surely get well by ankylosis, partial or complete; but occasionally the patient's strength threatens to give way, and excision may be called for; it is a rare case, but the most promising for the operation. Few museums are without old specimens of bones amputated for such a condition of things.

To sum up in the words of Mr. Barwell—words which, though bearing evidence of very hasty composition, inculcate sound practice,—“The operation must be considered as still *sub judice*. It has zealous advocacy, and bitter antagonism. At the present time the balance of evidence seems rather in its favour, but we have not all the evidence. It cannot be said either that preference should be given to excision or to amputation; but, it may be observed, that the choice of cases for excision of the knee, should be very carefully made, and that it is not an operation which can be practised in an equal number of diseases of that joint, as resection of the elbow or shoulder, in maladies of those articulations.”

Hip joint and head of femur.—As regards excision of the hip joint and resection of the head of the femur, the most complete statistics are to be obtained by a comparison of Heyfelder the younger's monograph, and a paper by Fock, in *Langenbeck's Archives*. By collating their tables for the years 1851—60, inclusive, the following results are arrived at.

Seven cases were operated on for gunshot wounds, of which but one recovered;^a but seeing that amputation for gunshot wounds of the hip joint may be said to be invariably fatal (but one exception is on record), and that all patients who are not subjected to operation also die, this ratio of success is sufficient to justify the adoption of excision in such cases.

Omitting cases of which we have no recorded result as to the life of the patient, it appears that in 68 instances excision of the hip joint has been performed for disease, during the decade. Twenty-seven of these patients died in periods varying from a few hours to 18 months after operation; one died of phthisis after three years. Of the remaining 40, 26 have limbs of varying degrees of usefulness, five are still on crutches, two are still unhealed, and of seven, the result, as regards the limb, is not known.

These results are not cheering, but they are quite sufficient to induce us to operate, if death seems otherwise certain, and that the circumstances of the case hold out any prospect of success. Resection of the head of the femur stands on a different footing from other resections in the extremities, inasmuch as we have no practical choice between it and amputation. The latter is not applicable for disease of this joint, and has been

^a This case was operated on by Surgeon O'Leary in the Crimea; Staff Assistant-Surgeon F. O'Dell, who was present and assisted at the operation, states that this man subsequently had a very useful limb.

invariably fatal when attempted. Indeed no modern surgeon is likely to risk his reputation by repeating the operation: hence, we are justified in resorting to resection, if we have any reasonable probability of success. Mr. Hancock^a has shown that the more formidable operation of excision of the entire joint, is capable of a favourable issue, at least for a time. In three of the successful cases given in the tables of Fock and Heyfelder, perforation of the acetabulum and intra-pelvic abscess are mentioned as complications.

Ankle.—Excision of the ankle joint is satisfactory in its results. In the hands of Mr. Hancock, the deaths have been not greater than one in four, and the limbs have been very useful, even in patients who have to earn their bread. In Heyfelder's tables but two deaths are noted in 22 cases, and two secondary amputations; nearly all the cases are reported as useful joints with motion, but two being ankylosed. Excision of the os calcis and of the astragalus may also be looked upon as proved and found useful in suitable cases. Nature supplies a large amount of firm fibrous tissue in the room of these cancellated bones, and in the case of the os calcis, a high heel of cork or wire-spring supplies any remaining deficiency. In our present number we have an interesting account of two new cases of resection of the astragalus by Dr. Heyfelder.

Scapula.—Complete resection of the scapula has been done four times, by Langenbeck, Syme, Heyfelder, sen., and Jones. The cases of the first three died, the other convalesced; of partial amputations, to any extent, seven out of 15 died.

Maxillary bones.—Heyfelder, sen., has four times removed both superior maxillary bones. Three of these are detailed in our 23rd volume, the fourth in his son's monograph.

The first, a case of cancer, survived the operation 15 months, dying of a return of the disease.

The second, a similar case, died in rather less than two years after the operation, of a return of the cancer.

The third had survived 14 months without any sign of return of disease at the last account. This operation was done for what we should call a lupoid ulceration, but there is no proper description of the nature of the morbid mass.

The fourth case died 40 hours after the operation, having disease of lungs, liver, and kidneys. Other operators have performed the formidable feat of removing these bones,—Dieffenbach, Maisonneuve, twice, Dietz, Jüngken, and Langenbeck.

Four cases out of 10 may be considered successful; in one the result is not known.

Direct Injury.—Excision is of great value in cases of direct injury. It

^a Lancet, 1857-8.

is well known that the rate of death, after amputation, is high in such cases, and especially in gunshot wounds; the results of the Crimean campaign are generally in favour of the attempt to save the limb by excision of the shattered joint where practicable; the mortality is high, but not higher than that of amputation. Guthrie long since laid down the rule—in gunshot wounds of the head of the humerus and of the elbow joint—to save the limb by excision, even if a large piece of the shaft has to be removed in the former case; and this is perfectly in accordance with the results of more recent experience. An excellent example of the application of this operation in a case of compound fracture of the elbow joint, lately occurred in the practice of Mr. G. H. Porter; the limb was not only preserved, but was eminently useful for the purposes of the man's trade as a painter.^a

Anchylosed Joints.—The question of forced rupture of ankylosis, raised by Stromeyer, Louvrier, Dieffenbach, and Langenbeck, is considered by Holmes Coote,^b Barwell,^c Brodhurst,^d Tamplin,^e Hingston,^f Frank,^g and others.

It will be remembered that Stromeyer advocated gradual extension, or flexion, after subcutaneous tenotomy, that Louvrier and Dieffenbach forcibly and suddenly ruptured the ankylosis, and that Langenbeck followed in their steps, discarding, perhaps, the extreme violence which led to rupture of vessels and nerves, and to fatal injury to limb and life in the hands of Louvrier. Langenbeck uses considerable force, under chloroform, but does not insist on completely restoring the mobility of the joint at the first séance. The result of his practice, according to Mr. Frank of Manchester, has been so eminently successful, that, out of 150 cases, he has only lost one, and that by what he terms central necrosis, extending through the epiphysis, and communicating with the joint.

Mr. Brodhurst seems to break up the adhesion by a succession of slight jerks—a plan admirably adapted for getting rid of fibrous bands of small size, which not unfrequently form the sole obstacle to moderate use of the joint. He replaces the limb in its position of ankylosis for a few days, until inflammatory reaction subsides.

Mr. Barwell urges the propriety of early passive motion during the process of cure, so as to prevent fixity.

The subcutaneous section of tendon and muscle, even to a considerable extent, is advocated by the same writer.

^a Dublin Quarterly Journal, Vol. xxx.

^b British Medical Journal, September, 1858.

^c Op. Cit.

^d Medico-Chirurgical Transactions, Vol. xl.

^e On Deformities, Medical Times and Gazette, 1858.

^f Glasgow Medical Journal, July, 1853.

^g Medical Times and Gazette, August and November, 1853.

AMPUTATIONS.

Mode of Operating.—On the subject of amputations, we have a principle laid down by Mr. Lane, in the new edition of *Cooper's Surgical Dictionary*, which is to guide us in the selection of the flap or the circular method. Slightly modified it stands thus. When amputation is required for accident in a limb not gorged by inflammatory exudations, the circular method is to be preferred; but when the plastic effusions of recent or chronic inflammations have glued the skin and muscles into a firm and unretracting mass, the double flap will be found both easier of execution and more satisfactory in its results. Of Teale's rectangular flap we have, as yet, too limited experience; it would appear to be best suited, in cases of the former class, where lacerations from machinery or other causes interfere with the circular method.

Amputations through the Condyles.—These begin to be looked upon with disfavour, notwithstanding the approval of them by Syme and Ferguson. The cancellated osseous tissue abounds so with veins, that phlebitis of a dangerous character too frequently results from it. Probably amputations at the joints, or in the contiguity, as the French term it, will succeed them, and deservedly so, in suitable cases. The cases which demand amputation at the joint are, however, but rare, and will be limited, as a rule, to the upper classes, as the stumps obtained from amputation in the continuity are much more serviceable to those who have to earn their bread.

Section through the Joint.—Has been recommended by Haynes Walton,^a and he gives a judicious warning against meddling needlessly with the articular cartilages.

In the amputation above the carpus, such removal is bad surgery, as it is followed by loss of pronation and supination in the stump, and great injury to the utility of an artificial member. The presence of the cartilages does not interfere with rapidity of union; for they are cast off in shreds during the suppurative process, and, even in large joints they will disappear in a very few days.

Dr. Markoe^b of New York supplies us with statistics on this operation. The proportion of deaths, according to him, is 37 per cent. for amputation at the knee joint, and 43½ for amputation in the thigh. The value of such statistics *en masse* is more than doubtful. There are many things to be taken into consideration in the individual case, that can only have light thrown on them by similar circumstances in other cases, and besides, the statistics of one man differ materially from those of another.

Mr. Bryant has given a most painstaking table in the *Lancet* of March 12, 1859, containing much valuable information on the subject of the causes of death after amputation.

^a *Lancet*, November, 1859.

^b *New York Journal of Medicine*, 1856.

Amputation in the Child is contra-indicated below the knee, for reasons of *convenience*. In such cases the limb ceases to grow at the same rate as the other, and the patient, when grown up, presents the disagreeable spectacle of having his two knees on different levels.

Amputation of the Ankle.—Pirogoff's modification of Syme's amputation at the ankle joint is a valuable addition to our resources; and to Pirrie or Eben Watson^a we are further indebted for an improvement in the mode of its execution. This modification consists in first directly dividing the soft parts down to the bone, by an incision from the tip of one malleolus to the other, under the heel; secondly, sawing the os calcis in an upward and backward direction; thirdly, completing the posterior flap; fourthly, making an incision in front of the joint, from one malleolus to the other; and finally, sawing off the malleoli. If the os calcis should prove at all carious its remains can be removed on the moment, as converting the operation into an improved and rapidly executed Syme's; but where the bone is sound it has been found to unite to the tibia with wonderful rapidity. In this operation, as elsewhere, caution in selection of cases is required.

All new operations have first to run the gauntlet of injudicious support, and afterwards of almost equally injudicious neglect. This oscillation of professional favour will be in proportion to their importance and magnitude. In the case under consideration it is stated that Pirogoff himself has abandoned the operation; its success in the hands of others demands, a reconsideration of this verdict. Mr. Syme gives it a determined opposition:—

"The only other alteration worthy of notice is that of Professor Pirogoff, of St. Petersburg, who proposed to retain the tuberosity of the os calcis by sawing it off before the disarticulation was completed, and thus, so far as possible, depriving the operation of all its advantages; in the first place, by rendering it complicated instead of extremely simple; secondly, by making the stump too long; thirdly, by impairing its constitution; fourthly, by retaining a portion of the osseous tissue justly liable to the suspicion of relapse; and fifthly, by not being applicable to all cases requiring amputation at the ankle. On these grounds I have been accustomed to regard the adoption of this modification as a certain sign of lax surgical principle."^b

It would have been more satisfactory had the energetic Professor of the Northern Athens supplied us with some of his reasons for coming to the above five conclusions.

HERNIA.

Few subjects give greater proof of the desire of surgeons to improve their art, than hernia. These efforts take three distinct directions—

^a Lancet, June, 1859. Pirrie's Surgery.

^b Observations in Clinical Surgery, p. 47. Reviewed in our present Number.

1. The radical cure of hernia.
2. The reduction of hernia.
3. Improvements in the mode of operation for strangulated hernia.

Operations for the radical cure.—Wützer's operation for the cure of reducible inguinal hernia dates back to 1838, but was scarcely known, and not practised in this country until introduced to our notice by Mr. Spencer Wells.^a It appears to be extremely successful in the hands of the Bonn professor, of Sigmund of Vienna, and of Rothmund of Munich. The last-named had operated on over 1,000 cases up to the year 1858, without a single death. This speaks strongly for the safety of the operation—of its efficiency, accounts are dubious, at least cases are not sufficiently long under observation, except occasionally, for us to judge of the permanency of success. Mr. Wells' paper in this Journal^b is so ample, that we need only give the briefest description of the operation, which, indeed, is now well known. The instrument consists of a central plug, with two side pieces, which are capable of being detached, in order to change them for larger or smaller pieces, according to the size of the ring; through the long diameter of this plug (which is a flattened cylinder), one, two, or three curved needles can be passed, which make their exit near the extremity on its upper surface; this plug is thrust up into the ring, invaginating some of the integument of the scrotum, the needles are then inserted through the doubled skin and the sac, an external slightly concave plate is now screwed down, so as to compress the abdominal wall and invaginated skin and sac together, with any degree of force that may seem safe or advisable. The apparatus is left in situ from six to ten days, and then cautiously removed; the patient remains horizontal until the needle punctures are healed, and wears a weak truss with a large soft pad, for three months, in order to support the recent adhesions, and prevent the retraction of the invaginated skin. Mr. Wells claims that in strong patients, up to 40 or 45 years of age, when the hernia is of moderate size, a perfect cure may be expected, and that in large herniæ, which a truss will not keep up, such reduction in the size of the ring is obtained as to enable a truss to act efficiently. In our present number there is an ingenious modification of Wützer's instrument by Redfern Davies; he found that the gut was apt to slip down behind the plug of skin, owing to an aperture of small size remaining unclosed in the upper part of the canal. To obviate this, he makes his cylindrical plug in two portions, connected at their outer extremities by a hinge, and capable of being separated at their point by a screw and lever. Where Wützer's operation is adopted, this modification of his instrument deserves attention.

Wood's operation has almost supplanted Wützer's. It has the advan-

^a Medico-Chirurgical Transactions, 1854.

^b Dublin Quarterly Journal, 1858.

tage of not stretching the canal and ring as Wützer's instrument must do. It is a modification of the old royal stitch; its principle is to pass one end of the thread into the canal and out through the skin under one pillar of the outer ring; the other end of the thread is passed up in like manner under the inner pillar, and out through the same opening in the skin. Previous to passing the threads, a dissection of a portion of the superficial fascia and fascia propria has been made through a small opening in the upper part of the scrotum, and as much of these as possible is invaginated when the loop of the thread is drawn up. The ends of the thread are either tied over a piece of round box wood, or simply drawn tight without any intervening material.

Roubaix devised an autoplatic operation, by means of which a triangular piece of skin was made to close the opening of the sac.^a

R. Davies has applied his modification of Wützer's operation to femoral and ventral hernia with success.

Lee has used a simple stitch like Woods', only that he brought out the ends of the ligature at different openings in the skin, and included a bridge of skin in the knot, the ligature was allowed to slough out.

Syme used a rectal bougie in place of Wützer's expensive apparatus, passing his ligature through a hole in the end of the bougie. Other minor modifications of these operative measures have been suggested by many surgeons—their very number indicating that the operation is a disappointing one. Certainly it presents no feature to recommend it in preference to the admirable truss long since invented by Mr. L'Estrange.

None of these operations act upon the internal ring, and none of them effectually upon the upper part of the canal. All of them are applicable to those hernia only which have descended beyond the external ring. Now, Mr. L'Estrange's truss exercises pressure on the entire canal and the internal ring. It is applicable to true inguinal hernia, as well as to scrotal, and if the patient will confine himself to the horizontal posture, as long as is needed after Wützer or Wood's operation, and will afterwards wear the truss for a few months, he will be cured much more certainly and permanently than by any of the other means.

Sir Astley Cooper long since laid down the principle that all trusses must fail to cure hernia, unless they compress the canal and internal ring. Mr. L'Estrange's truss fulfils the necessary indications. It makes its principal pressure on the internal ring and neck of the sac, and the force of the pressure lessens as we pass down the canal to the external ring. By this constant pressure, an escape of intestine from the abdominal cavity is completely prevented, adhesive inflammation is set up between the opposed surfaces of the sac, and a permanent cure effected. If the patient will lie for ten days or a fortnight after the application of the

^a Gaz. Med. de Paris, December, 1855.

truss, Mr. L'Estrange asserts, the cure will be almost certain. Even without that precaution many patients have, by its use, been cured, not only of small recent hernia, but of hernia of large size and old standing.

This truss is now used extensively both in the army and navy, and has had testimony borne to its efficiency, as a truss and as a means of cure, by the most distinguished surgeons of the day. Omitting the names of Irish surgeons who might be supposed to be prejudiced, it will suffice to say, that Ferguson, Liston, Syme, Miller, among civil surgeons, and Alexander, Bell, Carter, and Gibson, among military and naval, have given it their approval; that cases of radical cure by its use are recorded under the hands of the most distinguished medical officers of both services; and that the Academy of Medicine of St. Petersburg has signified to Mr. L'Estrange its approval of the principle on which it is constructed. Seeing we possess such efficient and bloodless means of cure, our English and German friends must forgive our apparent neglect of their ingenious operations.

M. Bourjeaud^a has devised a combination of elastic bandage and air pad, which appears to be a comfortable kind of truss, but not efficient for the radical cure.

Of injection of iodine into the sac (Velpeau, Jobert, Pancoast), or subcutaneous scarification of the neck of the sac, nothing need be said. They have almost passed into oblivion as means of effecting a radical cure.

2. Modes of facilitating the reduction of hernia.

Malgaigne, Bransby Cooper, and Hilton,^b succeeded in reducing apparently irreducible hernia, by a prolonged use of ice to the tumour, gentle laxative medicines (magnesia with colchicum), and sometimes the full administration of opium, with dry diet and the recumbent posture, or shoulders slightly raised.

In cases of strangulated hernia, Baudens^c recommends ice to the tumour, with compression, where it can be borne, and elevation of the pelvis. Dr. Andrew Buchanan, of Glasgow,^d suggests prolonged and forced expiration, so as to use traction on the intestine by means of the upward action of the diaphragm.

Other means of making traction on the intestine from the direction of the abdomen, are depression of the shoulders and elevation of the hips,^e to which may be added the application of a jack towel or roller round the abdomen,^f the ends of which are pulled upwards, so as to drag up the intestines.

^a *Lancet*, Jan. 10, 1852.

^b *Medical Times and Gazette*, May 28, 1853.

^c *Gazette des Hôpitaux*, August, 1854.

^d *Glasgow Medical Journal*, July, 1856.

^e An old method revived by Drs. Jessop of Cheltenham and H. Power.

^f Wise, H.E.I.C.—Braithwaite, Vol. xxi.

In the Meath Hospital success in reducing a hernia is frequently attained by the use of a large cupping glass applied to the surface of the abdomen, close to the ring. This acts by dragging the intestine away from the sac, and by emptying the constructed portion of its gaseous contents. For this very useful suggestion we are indebted to the respected apothecary, Mr. Parr. Strong and hot coffee, given in cupfuls every quarter of an hour, without milk and with very little sugar, seems also to have a wonderful power over the spasm of the intestine, and has succeeded in the hands of several practitioners in procuring reduction of obstinately strangulated hernia.^a

3. *Operations for reduction of strangulated hernia.*

Baron Seutin of Brussels inserts his little finger gently along the hernia, until he gets it within the ring; he then hooks his finger and tears the ring forcibly. By this means he has often succeeded in avoiding a cutting operation.

For femoral hernia Mr. Gay's minute incision at the inside of the neck of the sac, immediately over Gimbernat's ligament, gains gradual favour. It has the advantage of enabling the operator to divide the stricture almost subcutaneously, by an insignificant wound, without, in the majority of cases, opening the sac. By means of it the mortality of hernia is reduced 50 per cent. Messrs. Fergusson, Luke, Paget, Birkett, and many others, fully approve of it, and in a few years it will, it is to be hoped, be the rule.

The objection that at times the intestine and sac may be returned *en masse*, holds equally to the taxis. This accident occurs because men forget that taxis is not, or ought not to be, at first a force exercised to push the intestine back into the abdomen, but rather a gentle and even compression of the tumour, by which it is sought to empty the intestine first of its gaseous, then of its feculent contents, before attempting to return it. Let the taxis be used properly, and very seldom indeed will the reduction *en bloc* be met with.

The extra peritoneal operation is also applicable in some cases of inguinal hernia, especially the more direct forms; and there is no reason why the effort should not be made to reduce the intestine by means of it, before resorting to an opening into the serous sac—always having due regard to the mode in which the taxis should be applied. The whole question of extra peritoneal operations for hernia was discussed, at length, in the last number of this Journal.^b

Valuable statistics and conclusions on hernia will be found in a paper by Mr. Bryant, in *Guy's Hospital Reports* for 1856.

^a Durand of Havannah, Sammut of Malta—Braithwaite, Vol. xxxvi., xxxvii.

^b On Hernia, by Mr. M. H. Collis, Vol. xxxiii., p. 293.

GENITO URINARY ORGANS.

The operation for Phymosis needs some comment. In Mr. Erichsen's Surgery, we have an emphatic condemnation of slitting up the prepuce for the congenital form of this affection, and a description of circumcision, in which, after cutting off the foreskin and slitting up the mucous covering of the glans, it is directed to trim off the angles and to *snip across the frenum*. Against this last direction an equally emphatic protest must be entered. Any meddling with the frenum is not only unnecessary but unjustifiable. It is the most sensitive part of the organ, and a wound of it is exquisitely painful and remarkably slow to heal; any curtailing of the folds of mucous membrane, which spring from it, will leave a cicatrix that will be more or less tight. Very troublesome constrictions of the glans result from this operation, which partakes very much of the character of meddlesome surgery. The skin of the prepuce is not so much in excess as the mucous covering is scanty. An operation, then, should have for its object to borrow from the skin in order to make up the deficiency of the mucous membrane. This can be done by drawing back the prepuce as much as possible, and freeing the lining membrane by a succession of nicks either in the centre of the upper surface or at each side—a small bistoury, or, what is better, a pair of scissors will do this, and the operation will be trifling and almost bloodless. A stitch or two may be necessary at the angle of each nick, to prevent the reunion of their raw surfaces, or the same result may be secured by keeping the prepuce retracted, but at the risk of a temporary paraphymosis arising. The extra skin, which Mr. Erichsen thinks so much in the way, becomes inverted and supplements the deficiencies of the mucous membrane.

For phymosis, the result or concomitant of ulcers of the prepuce, the removal of an oblique ring may be required; but even in these cases we shall do well to keep as clear of the frenum as possible.

Stricture of the Urethra.—There has been but little added to Hunter's opinion of the ordinary locality of stricture, viz.:—"Every part of the urethra is not equally subject to stricture; for there appears to be one part which is more liable to them than the whole of the urethra besides, namely, about the bulbous portion. We find them, moreover, sometimes on this side of the bulb, but very seldom beyond it. I never saw a stricture in that part of the urethra which passes through the prostate gland." Mr. Thompson^a divides the urethra into three regions, excluding the prostatic portion, in which no true stricture has ever been found upon *post mortem* examination. These regions are:—First, from the posterior boundary of the membranous portion $1\frac{3}{4}$ inches forward; second, the centre of the spongy portion; third, from the external orifice backwards for $2\frac{1}{2}$

^a Stricture of the Urethra. Jacksonian Prize, 1852.

inches. Out of 320 strictures 215 occurred in region one, 51 in region two, 54 in region three. The most common point of all was the junction of the membranous and spongy portions, next the anterior boundary of region one; while, between these two points six examples of stricture are met with for one behind the junction. Mr. Smith's statistics corroborate these. Stricture in the prostate is affirmed by Ricord and Leroy-d'Etiolles; but the museums of London, Edinburgh, and Paris present no example of it. Narrowing of the canal by the pressure of enlarged prostate no doubt occurs frequently, but this must be distinguished from true stricture. In the Museum of the Meath Hospital there is an example of what is generally, but erroneously, termed bridle stricture, situated in the prostatic portion. It is one of those small fibrous bands which stretch across the canal from side to side, and which owe their existence to an elongation of a morsel of lymph which has been effused on the surface of the urethra, and has become organised after acquiring an attachment to the opposite side of the canal; or, as Mr. Thompson suggests, to the perforation of a follicle by an instrument. The true bridle stricture of Sir Charles Bell is a fold of thickened mucous membrane, of crescentic form, partially obstructing the urethra by running half way across it, or obliquely; sometimes two or three such partial strictures coalesce, making the floor or sides of the canal irregular and rough, and, as it were, flattened. The other is scarcely a stricture, but either a free band of lymph or a short false passage.

Perineal Section.—About 10 years ago there was a hot controversy upon this subject. This has now died away, mainly owing to a better definition of terms, and to a more perfect comprehension of proper principles of action. We are in a great measure indebted to Mr. Henry Thompson for this result. Mr. Syme, it will be remembered, contended that such a thing as impermeable stricture did not exist. By many he was misunderstood as denying the existence of obliterated urethra. His assertion went no further than to declare, that in every case in which urine could make its way from the bladder through the urethra, a catheter could be got into the bladder by time and patience. This statement of Mr. Syme's coincides with Mr. Liston's experience, and is not contradicted by that of other surgeons. It does not follow, however, that cutting operations may not be needed for the immediate relief of a distended bladder, or for the cure of a contractile stricture. The latter is the condition which Mr. Syme proposed to remedy by "external division." Prior to him the rule had been that if a stricture were permeable by instruments external division is contra-indicated. Mr. Syme proposes to reverse the rule, namely—"permeability is an indispensable pre-requisite to the performance of external division." He found that many strictures were so callous, and had such an inveterate tendency to contract, that within a few hours after dilatation they were as narrow as ever. He proposed to

divide these by an incision, carried from behind the stricture forwards to the sound part of the urethra. His narrow grooved staff, with handle of full size, down to the commencement of the curve, is well known. By a careful use of this staff the extent of the stricture anteriorly is readily ascertained, and its complete division secured. A new plastic material unites the divided surfaces, and is capable of being stretched by the use of bougies so as to make future contraction of great rarity.

Other surgeons, prior to Mr. Syme, had divided strictures by cutting down upon the point of a staff passed as far as the stricture, and then cutting through it backwards towards the bladder, either with no further guide, or by the assistance of small grooved directors insinuated through the stricture from the wound. To this operation the name of "perineal section" is limited. To Mr. Syme we are indebted for the operation of "external division," by which the urethra is opened behind the stricture, upon a grooved staff, and the stricture divided by a cut forwards along the raphe. Mr. Bryant, in his *Clinical Surgery*, gives a very good *resumé* of the subject from a practical point of view; but, as is usual with him, with no reference to authorities. Few years pass by without some surgeon devising an instrument for dividing stricture by concealed knives or scarificators introduced into the urethra. This internal division of stricture has never had much favour in this country, and the instruments, with the exception of Stafford's, are almost forgotten or unknown. A more dangerous mode of treatment can scarcely be conceived; and it is no matter of surprise to find M. Nelaton state that in more than half the number of incisions performed in Paris there is hemorrhage, and often to an alarming amount. Dr. James Arnott^a states, that internal incision has often proved fatal from hemorrhage, infiltration of urine, and pyemia. He has also forcibly pointed out the impossibility of limiting the incision to the stricture, if it be made by an instrument which is either pushed backwards or drawn forwards; and he has striven to obviate all these dangers and difficulties by an instrument which shall cut by direct pressure upon the previously measured stricture.

The Splitting of Unyielding Strictures, by a dilator, has been largely practised by Mr. Holt, of Westminster Hospital, and apparently with great success.

The infiltration of urine and abscess which would naturally be supposed to follow from such a proceeding do not do so; and this is the more extraordinary as it is generally the floor of the urethra that gives way. This plan of treatment is on its trial. The instrument consists of the bivalve staff invented by Perré, of Paris, with rods of various sizes, which are run down between the blades, so that the stricture is suddenly distended by an irresistible force, and is ruptured accordingly.

^a Medical Times and Gazette, February, 1861.

If the operation be successful it has the merit of being rapidly so; and the cure is said to be permanent. Mr. Holt also uses this instrument for dilating strictures in the ordinary and more gradual manner, which is in general acceptance with surgeons. Its principle of action in this mode of application is identical with Mr. Hutton's railroad catheter, and Mr. Wakley's modification of the same.

Mr. Heath, of the West London Hospital, has corroborated Mr. Holt's treatment in a paper in the *Lancet*.^a

In Lithotomy—various improvements have been effected. First, in the mode of securing the patient. If the chloroform is to be used, the old plan of fastening the hands to the feet must be given up, as the chest is thereby dangerously compressed, and respiration impeded. Though no death may hitherto have taken place from neglect or ignorance of this matter, yet it is so very easy to understand that such might occur that it is necessary to draw attention here to the point, though so very self-evident. In the operation we find *Buchanan* using a *rectangular staff*, and making his incision in the outer parts in a rectangular form, while the internal incision turns out to be identical with that of the ordinary incision into the bladder and prostate in the lateral operation. *Allarton*^b has revived the *Marian operation* (*en boutonnière*), and has a host of adherents.^c He pushes the point of his knife into the central raphe of the perineum, in front of the anus, with his left fore-finger in the rectum and the back of the knife towards the anus; by depressing the curve of the staff towards the rectum, he opens the membranous portion of the urethra, and then gets a probe into the bladder. The staff is then withdrawn, and the finger follows the probe into the wound, and the prostatic portion of the urethra is now gradually dilated to the needful amount. This operation is essentially the right thing for small stones, and even for those of larger size it is not unsuitable, as the use of the lithotrite can readily be combined with it. In children also, whose prostate is small, it is a safer operation than lateral lithotomy. For the removal of foreign bodies in the bladder or posterior part of urethra it is also invaluable. I had occasion to perform such an operation in the year 1853;—and from experiencing its facility and safety, I recommended its adoption for the extraction of foreign bodies from the bladder. Its applicability for stone became also evident to me at the same time; but I did not wish to put it forward on theoretical grounds; and, before I had an opportunity of testing it, Mr. Allarton anticipated me.^d The main objection made to

^a *Lancet*, August 31, 1861.

^b *Lithotomy Simplified*.

^c Teale, of Leeds, &c. *Ward*, *Lancet*, June, 1860. *Hall*, *Lancet*, September, 1860. *Hinton*, *Association Journal*, April, 1855.

^d Dr. King, of Hull, *Edinburgh Medical Journal*, January, 1857. *Dublin Quarterly Journal*, Vol. xx.

median lithotomy is that it substitutes dilatation and laceration of the prostate for incision. This, however, is an error. The lateral, or even bilateral incision of the prostate gives an aperture much too small for the extraction of an average calculus enclosed in the blades of a forceps; by the force required to extract it the prostate is more or less lacerated. No doubt the prostatic tissues are elastic, and yield to some extent, but not enough to avoid laceration in most cases. Now it is manifest that the laceration or distension which springs from a central wound in the gland will be less liable to extend beyond the limits of the gland than that which springs from a wound reaching almost up to the verge of the gland. There can be no doubt that most of the deaths in lateral lithotomy (which amount to 20 per cent. of cases operated on) are due to the wound extending, either primarily or by subsequent dilatation, beyond the limits of the capsule of the gland. Besides, it is found that separation of the fibres of the gland to the necessary amount can be effected without laceration of the mucous membrane, and that the highly dangerous infiltration of urine is thereby avoided. Mr. Allarton does not give chloroform, as the voluntary expulsive power of the bladder is most useful in the removal of the stone. Many of his patients were up and about on the day after the operation; and he has enjoyed singular success as regards freedom from mortality. Even for large stones a modification of the operation is suitable. Mr. Lloyd, of St. Bartholomew's, has found that no inconvenience arises from extending the incision into the rectum. The clean wound of the sphincter heals readily by first intention; and there is no danger of recto-vesical fistula, as in Vacca and Sanson's recto-vesical operation, inasmuch as the neck of the bladder is not cut.

The following statistics have been furnished to me by Mr. Allarton, with great kindness, and may be relied upon as absolutely correct:—

Total number of cases 154; total deaths 14; average 1 in 11.

PARTICULARISED CASES, or those in which the age of patient and size of stone are given.

Age of Patients	No. of Cases	Deaths	Average
10 and under,	56	2	1 in 28
11 up to 20,	16	1	1 in 16
21 up to 30,	10	No.	
31 up to 40,	6	No.	
41 up to 50,	6	2	1 in 3
51 up to 60,	13	1	1 in 13
61 up to 70,	26	7	1 in 4
71 and upwards,	6	No.	
	<hr/> 139	<hr/> 13	

Thus leaving 15 cases not particularised, and 1 death to them.

Of these deaths, one was the case of Mr. Erichsen, at the University College Hospital, a case which was doomed, no matter what the operation. Another case died of *diphtheria* a considerable time after the operation (17 days).

Altogether the results are very good, since they are fair average cases, not done by any one celebrated or successful operator, but by 42 different operators, many operating for the first time.

There was a controversy, in the year 1856, as to the mode in which Liston held his knife in cutting for the stone. Mr. Ferguson affirmed that he had held it underhand, and that the delineations in Miller's, Pirrie's, and Erichsen's Surgery were erroneous. Mr. Syme took the opposite view, and showed the danger of plunging into the pelvic viscera a knife with the fore-finger held on its back. Mr. Erichsen and others took a middle course, and asserted that Mr. Liston changed the position of the knife according to circumstances—in the first incision underhand, when striking the staff overhand. Whether this be correct as regards Mr. Liston may be a matter of opinion. It may also be a matter of indifference how the knife is held in the first incision, although it will be more graceful to hold it underhand; but in striking the staff, if the surgeon would avoid the too common error of striking too far forward, he must hold his knife as a pen, but with the back of the fingers facing upwards; depressing his wrist to the utmost, he must strike upwards (anatomically speaking) from the posterior angle of his wound. In executing this manœuvre the extensor muscles are put upon an almost painful stretch in order to depress the wrist, and at the same time to elevate the points of the fingers. To strike the staff with the knife held underhand is difficult and uncertain; the point of the knife will be advanced obliquely if great care be not taken; while with the knife held as a pen, and steadied between the thumb and first two fingers, with the handle lying between the root of the thumb and fore-finger, as the feathered end of the pen does in writing, the natural direction imparted to it in the movement is straightforward, with a slight upward tendency as regards the operators, and as regards the patient it is directly towards the membranous portion of the urethra. If made from the posterior angle of an incision which extends—as the first incision for lateral lithotomy should do—as far behind the anus as in front of it. Mr. Erichsen's view, and that of Mr. Syme, approach theoretical accuracy more nearly than Mr. Ferguson; but none of the pictorial representations in the books are to be relied on. None of them give the position above described; and in all the fore-finger is much too far from the point of the knife. No doubt each operator will naturally hold the knife as is most convenient to himself; but those who have to form their hands will find the above method most advantageous.

Some valuable statistics of lithotomy are given from the Norfolk Hospital,^a

^a Lancet, September 1, 1860.

where for upwards of 80 years a careful record of these cases has been kept:—Of 863 cases of stone operated on, 755 recovered, 108 died, or 1 in 8. The operations performed were:—

Lateral,.....	803	Recoveries, 698;	Deaths, 105;	or 1 in 7·65
Dilatation (females), 41	„	39	„	2 or 1 in 20
Lithotrity,.....	11	„	11	
Median Lithotomy... 8	„	7	„	1 or 1 in 8

All the calculi are preserved and carefully tabulated, to the number of 982, besides 542 presented from various quarters.

For Removal of Stone or Foreign Body from the Bladder of the Female Mr. Syme^a gives a good proceeding. He dilates the urethra, under chloroform, by a succession of bougies, until the point of the finger reaches the neck of the bladder, where, feeling the tense resisting fibres situated there, he makes a very slight incision, hardly more extensive than the blade of a narrow straight bistoury. The finger is thus enabled to enter the bladder, and the foreign body can be extracted by forceps, scoop, or hook, according to its nature. This combination of dilatation and cutting is a judicious improvement on the use of either alone, inasmuch as it is not followed by incontinence, the small wound readily healing, and the stretched but not lacerated fibres quickly recovering their tone.

Abscess of the Prostate.—Mr. Hamilton^b gives us a good diagnostic mark in cases of this kind, where, from the irritability, pain, and frequent calls to make water, the disease might be mistaken for inflammation of the bladder. In both cases the urine may contain much pus, and be turbid, but in abscess of the prostate the urine is acid, and remains so for some time, while in catarrh of the bladder it is alkaline, and rapidly putrifies.

The same writer has more than once drawn attention to the connexion between tubercular disease of the testicle and the “pustulo-crustaceous eruptions” of advanced syphilis.

Cystic Disease of the Testis.^c—Attention has been drawn to the not infrequent confusion of cystic disease of the testis in an advanced stage, with encephaloid cancer of that organ. The particular form of the disease liable to be confounded with cancer is that in which the cysts are filled with a fibrinous material of a brownish-yellow colour, and pultaceous consistence. More than half of the specimens labelled as encephaloid of the testis in the Museum of the Dublin College of Surgeons are of this comparatively innocent nature; and the history of such of them as can be collected from the catalogue and elsewhere corroborates this view. The structure of the organ seems to favour the development of cysts; they are undoubtedly formed as a result of inflammatory action in the

^a Observations in Clinical Surgery, 1861.

^b Dublin Quarterly Journal, May, 1851.

^c M. H. Collis, Dublin Quarterly Journal, Vol. xxx.

tubuli seminiferi which cuts off portions of the tubes by adhesion of their walls, or blocks them up by effusions of blood or lymph. The tubular structure and high vascularity of the organ makes it subject to the acute forms of cancer (encephaloid and melanosis), and not to schirrus. Genuine schirrus of the testis is, as far as my observation goes, an unknown affection.

Operations for the Cure of Varicocele and Varicose Veins are at present in great repute in France and England. The simplest and least dangerous of these are Vidal de Casis', Lee's, Erichsen's, Startin's, Ricord's, and Tufnell's methods.

Vidal inserts a pin behind the veins, and a wire in front of them, but through the same apertures in the skin; the wire is passed through holes in either end of the pin, and the two being twisted, the veins are compressed and gradually cut through.

Lee^a passes two needles under the veins, and applies the twisted suture for a few days, until the vein is filled with a coagulum between the sutures; he then divides the vein subcutaneously.

Erichsen^b substitutes, for Vidal's bar and wire, a simple loop of wire, which he gradually twists until it cuts its way out.

Startin^c uses what he terms a bar-needle and clasp, which are convenient for many operations besides those on varicose veins. The bar-needle has a straight shaft and a curved extremity; the latter enables the operator to pass it readily under the vein, the former enables it to compress the vein when passed through. The clamp is a piece of wire with a loop at either end, which acts as the thread in the figure of eight suture.

Ricord makes use of two loops of hempen thread which are passed in opposite directions—one over and the other under the veins; the ends of each ligature are then passed through the loop of the other ligature, and drawn tight.

Mr. Redfern Davies^d and Mr. Tufnell^e substitute wire loops for thread; and the latter surgeon adds what he calls "retracting guides." These are simply threads of wire which are attached to each loop, and which enable the surgeon to lessen his compression of the vein whenever he pleases, or to remove the ligature entirely.

Mr. Davies found it impossible to remove the wire ligatures, in one instance, and was obliged to cut them close off, and leave them in the man's scrotum, where they appear to have permanently remained without the patient being incommoded by, or even conscious of, their presence.

^a Medical Times and Gazette, January, 1853, &c.

^b British Medical Journal, February, 1860.

^c Medical Times and Gazette, May, 1860.

^d Lancet, July, 20, 1861.

^e Dublin Quarterly Journal, November, 1861.

All these modifications of metallic ligature are preferable to incision, excision, or caustic, though none of them are free from danger. In operations on varicose veins in the leg, it is advisable to place a pad on the vein above and below the point operated on, so that blood may not lodge there. There is no greater cause of troublesome and dangerous phlebitis than the presence of coagula in the veins. The danger may be reduced materially by the use of compresses; but in no case can operations on veins be considered other than uncertain and dangerous. In varicocele the use of elastic compresses and suspensories, cold douching early and late, and abstinence from the general exciting cause will cure many bad cases, and that with a surprising rapidity. The use of bromide of potassium (if it can be obtained pure) as an antaphrodisiac, in combination with iron, if necessary, is a useful adjunct; and everything should be tried before risking the patient's life by operation.

If the mortality were not more than one per cent. we should not be justified in letting our patient run even that small risk until all other means had failed. In varicose veins of the leg, the most perfect obliteration will not always cure the ulcers which have called for the operation; and if we knew but all, relapses will be found to occur after ligature of the spermatic veins, not to speak of the possible atrophy of the testis, for which our patient would not thank us. For the leg, a broad band of vulcanized India rubber tightly encircling the limb below the knee, as recommended by Professor Hargrave, will sometimes effectually compress the superficial veins, and drive the blood into the deeper channels, especially in thin subjects, and the plan is unattended with risk, and may fairly claim a trial.

For the Radical Cure of Hydrocele we have had two suggestions which are not improvements upon Sir Ranald Martin's now well established treatment. The one by Mr. Lloyd consists in the introduction of a grain of the red oxide of mercury into the cavity of the tunica vaginalis upon the point of a probe. Possibly in a case which resists injection of iodine this severer method might succeed. Cases, however, in which relapse follows injection of iodine, are very rare, and may generally be cured by a repetition of the injection. Among many hundred cases which I have seen in various places, I have only once known the first injection of iodine to fail; in this instance success followed on the third trial.

An attempt has been made to revive the old method by seton,^a only substituting iron^b or silver^c wire for thread; this, however, not only is uncertain of success, but has been followed by suppuration and other mischief.^d It should also not be forgotten that infiltration of the cellular

^a Chauliac, 14th century.

^b Young and Simpson of Edinburgh.

^c Erichsen.

^d Davidson, of Lincoln.

tissue of the scrotum (which is apt to occur upon acupuncture, or the use of a seton), is at times a fatal occurrence. For these reasons these methods cannot be accepted as improvements in the treatment of hydrocele. In his *Observations in Clinical Surgery* Mr. Syme expresses disapproval of the wire seton.

ANEURISM.

The Treatment of Aneurism by Compression, justly termed the Dublin method, has attained a settled position in surgery, and needs no special notice at the present date. The names of Hutton, Bellingham, Tufnell, and Carte in connexion with the origin, the pathology, the literature, and the mechanism of this mode of cure, are familiar to us as household words. Few arteries will now be tied for external aneurism until compression has been found unsuccessful. Even in places where the most unreasoning opposition was given to it, recourse is now had to it, at least occasionally, and once fairly tested it will be sure to find favour. Mr. Erichsen^a gives the following statistics as the result of the experience of London surgeons:—

In compression the failures were as 1 to 5·3, deaths as 1 to 16. In ligature the failures were as 1 to 3, the deaths as 1 to 4; this is exclusive of partial gangrene, secondary hemorrhage, and erysipelas, which frequently resulted from ligature.

For the cure of aneurisms which are not amenable to compression or ligature, other measures are suggested in the form of galvano-puncture, injection of perchloride of iron, and manipulation. The formation of an eschar by chloride of zinc paste, applied over the sac, has been successful in the hands of Bonnet, of Lyons, in a case of subclavian aneurism. Galvano puncture, first introduced by Mr. Phillips, in 1832, has been revived by Mr. Bonnet. It is a very painful process, and withal uncertain, not to say dangerous, though less so than M. Pravaz' injection of perchloride of iron, which is by no means to be considered in the light of an improvement. There remains the manipulation of the sac, by which the operator endeavours to loosen some of the softer clots in the aneurism, in order that they may be driven into the distal portion of the injured artery, and by blocking up the current, lead to a consolidation of the tumour. This method, due to the inventive genius of Ferguson, is mainly applicable to such tumours as lie at the root of the neck, and which leave no room for pressure or ligature on the cardiac side.

Mr. Ernest Hart,^b surgeon to the West London Hospital, has ingeniously combined flexion of the limb with pressure; this improvement has been successfully followed by Mr. Shaw,^c of the Middlesex Hospital, and by

^a Cooper's Surgical Dictionary, 8th Edition.

^b Medico Chirurgical Society, *Lancet*, May 7, 1859.

^c Medico Chirurgical Society, *Lancet*, May 7, 1859.

Mr. Oliver Pemberton,^a of Birmingham. The same method has been adopted for the checking of hemorrhage from wounds of the palmar arch. The fingers are flexed upon the palm, and the fore-arm upon the arm, and retained thus by bandages. I have tried flexion in popliteal aneurism, but without success; nevertheless I have a high opinion of its value, and believe it should be added to compression where the latter is not sufficient alone.

Of Operations for Ligature of Arteries we have a novelty in the late Professor Porter's^b method for ligature of the common femoral. He made a transverse incision half an inch below Poupart's ligament of about four inches long. In thin persons the artery is at once exposed, lying by itself, and it can be secured quickly and bloodlessly, without fear of injury to the vein. The objections to this operation, which will naturally occur, are the injury to the lymphatic vessels, and consequent tendency to erysipelas, the liability to gangrene from obstruction of so large a trunk as the common femoral, and the risk of secondary hemorrhage, owing to the number of branches given off in close proximity to the seat of ligature. It is to be feared that these objections will prevent this very simple operation from meeting with popular acceptance, and will outweigh, with most people, the advantages which it undoubtedly possesses of leaving the vein at a distance, and unmolested by the ligature. In a case in which it was lately adopted, the patient died of secondary hemorrhage, owing to an accidental high bifurcation of the vessel; the profunda was given off half an inch below Poupart's ligament, immediately above the spot where the vessel was tied; so that in fact the femoral, and not the common femoral, was ligatured; in the lower part of the artery there was a perfect clot; in the upper, the merest fragment, which might even be due to *post mortem* coagulation. The operation however is still *sub judice*.

Some brilliant and daring operations by the old method of cutting into the sac and tying the artery at the bleeding point, have been recorded by Mr. Syme in his *Observations in Clinical Surgery*. One especially deserves notice for a novel expedient which rendered the operation possible, and which well displays the daring and coolness of that distinguished surgeon. The tumour was very large, and extended above the clavicle, so that ligature of the subclavian became impossible, and amputation at the shoulder-joint seemed at first the only resource. The rest must be told in the words of Mr. Syme:—"Before proceeding to this desperate remedy I felt desirous of ascertaining the state of matters in the axilla, and therefore proceeded in the following manner:—

"On the 1st of February, chloroform having been administered, I

^a Lancet, September 3, 1859.

^b See a paper by his son, Mr. G. H. Porter, in the Dublin Quarterly Journal, Vol. xxx.; also Power on the Arteries.

made an incision along the outer edge of the sterno-mastoid muscle, through the platysma myoides and fascia of the neck, so as to allow a finger to be pushed down to the situation where the subclavian artery issues from under the scalenus anticus and lies upon the first rib; I then opened the tumour, when a tremendous gush of blood shewed that the artery was not effectually compressed; but while I plugged the aperture with my hand, Mr. Lister who assisted me, by a slight movement of his finger, which had been thrust deeply under the upper edge of the tumour, and through the clots contained in it, at length succeeded in getting command of the vessel. I then laid the cavity freely open, and with both hands scooped out nearly seven pounds of coagulated blood, as was ascertained by measurement. The axillary artery appeared to have been torn across, and as the lower orifice still bled freely, I tied it in the first instance. I next cut through the lesser pectoral muscle, close to the clavicle, and holding the upper end of the vessel between my finger and thumb, passed an aneurism needle so as to apply a ligature about half an inch above the orifice. The extreme elevation of the clavicle, which rendered the artery so inaccessible from above, of course, facilitated this procedure from below."

All went on favourably; the ligature came away on the thirteenth day; six weeks after the operation the man was dismissed cured. An equally daring operation on a gluteal aneurism will be found in the same book. These cases bring to mind an anecdote told of a distinguished French surgeon, which, whether true or not, exemplifies what may be done by coolness in the most dangerous emergencies. Having by accident opened the internal carotid, when operating in the region of the tonsil, he instantly checked the alarming arterial hemorrhage by compressing with one hand the carotid against the transverse process of the cervical vertebra, while with the other he coolly went through the steps of laying bare the vessel, and when he had accomplished this part of the operation, laying down his knife and taking up the needle he passed the ligature round the artery, never letting go his grip of the patient until the vessel was secured, and the patient's life safe, at least for that turn.

TETANUS.

Professor Haughton has brought forward some cases in which nicotine appears to have acted as a remedial agent in this formidable affection. His reasonings were founded on the fact that nicotine is an antidote to strychnia; and regarding the physiological similarity of the action of strychnia and of tetanic spasms, he was led to conclude that the antidote for the former might counteract the latter. Cases in which it has been tried show that it has a marked control over spasms of the respiratory muscles. It is to be hoped that this remedy will be fairly tested both in traumatic and idiopathic tetanus.

INJURIES OF THE HEAD.

The name of Mr. Prescott Hewett may well be associated with this subject, both in consequence of his painstaking course of lectures in the *Medical Times and Gazette*, and for his article in *Holmes' System of Surgery*. In the latter we have an admirable epitome of the subject, from which the following extract is made :—

Depressed Fracture.—"The principle of noninterference holds good in a comminuted fracture, even with depression of the fragments, provided there be no wound of the scalp and no symptoms. It is now an established rule in our metropolitan hospitals that simple fractures of the skull, with depression and without symptoms, are to be left alone. The depression may be so marked as to be easily detected; and yet so long as there are no symptoms all operative interference, of whatsoever kind, is carefully to be avoided. In such a case recovery may be as rapid and as uninterrupted as if there had been no depression of the bone." A caution, however, is to be given in such cases to the patient that serious results, from intra-cranial growths and otherwise, may result from this unrestored depression. The line of treatment for such fractures, complicated with wound, is different; as Sir A. Cooper and Brodie have shown, compound fractures, with loose or depressed fragments, lead to suppuration; and to prevent the pus from spreading under the bone its removal is called for.—P. 118.

Concussion.—Mr. Hewett's experience and reasoning go against the occurrence of concussion of the brain, as a cause of death, without traces of injury in the brain substance. In all suspected cases the heart and spinal chord should be examined as well as the head—the first for rupture, the second for extravasation. Many of the recorded cases of sudden death from supposed concussion he resolves, by analogy, into one or other of these. He would also attribute cases in which partial paralysis and loss of memory occur after injury to some extravasation of blood, or to some local injury to the brain-substance, rather than to concussion. This cannot be looked upon as other than conjectural; and when we compare cases of undoubted concussion with these, we cannot fail to be struck with the very gradual manner in which the symptoms coincide and run into one another; the more so when we compare cases of what are very graphically styled *MENTAL concussion*, where the whole train of symptoms indicative of arrested or depressed action in the brain-substance follow on a mental shock. In such cases all the immediate symptoms of profound depression, inclusive of irregular or imperfect paralysis of all voluntary, and many involuntary muscular actions are followed up by copious phosphatic deposits in the urine, impairment or perversion of the memory, torpor of the intellectual faculties, &c., in a manner not to be confounded with the more local, and possibly more severe, manifestations

of injury due to the presence of a coagulum, or the existence of a rent in the substance of the brain.

In accordance with the views of Dupuytren and M. Fano, and in opposition to Sanson and Boinet, he holds, that contusion of the brain has no symptoms special to itself, and that its existence may be inferred, but as yet cannot be proved during life. He thinks that many of the cases of partial paralysis and failure of memory, after injuries, are due to this cause, and not to concussion.

Abscess in the Brain.—Dr. Detmold^a has, within the last few years, followed the example of Dupuytren in plunging a knife into the substance of the brain, in search of pus; his incisions were repeated on three occasions, and varied in depth from half an inch to one inch and a half, a probe being passed into the wound, and reaching to the lateral ventricle. Matter was found on two occasions; but, in spite of this, the man died after the third incision, seven weeks subsequent to the first, and more than three months after the compound comminuted fracture which necessitated the treatment.

FRACTURES.

Starched Bandage.—That muscular action is the chief cause of displacement in fractures of the long bones is admitted as a general rule. The necessary corollary to this rule is that efficient control of the muscles will mainly remedy such displacement. The era of extension and counter-extension as a means of counteracting, wearying, and paralysing muscular action, but not controlling it, seems to be passing away. Men are now alive to the impossibility of overcoming the disturbing power of the muscles by these means, and to the mischief of attempting to do so. There would appear, indeed, to have been always a struggle between those who used these violent measures and those who tried simply to leave nature to effect the needful repair, without further interference than was necessary to ensure perfect repose. But unfortunately, as in many other branches of medicine and surgery, the dogmas and theories of the schools prevailed to the exclusion of more simple and rational procedures. From the time of Hippocrates there have been practitioners in every civilised community who used their bandages smeared with white of egg and flour, their plaster moulds, their starch, or gum, or waxed apparatus as effectually as many of the modern supporters of the *appareil immobile*. But these men have been, as a rule, outside the pale of the profession, and the prejudices of cast prevailed to exclude from due consideration the principles which their practice involved. Witness the Protest of Fabricius ab Aquapendente against a slight modification of the method as proposed by some of his cotemporaries—"Nos autem principes medicinæ sequemur." Although casual mention is made of the immovable apparatus

^a American Journal of Medical Science, No. 37.

in the writings of Fabricius, as also in those of Paré, Wiseman, and others, yet it remained for quite modern times to introduce it into general recognition as an orthodox means of treatment, and to elicit the principles which are to guide its application and ensure its success. Belloste, in the last century, Larrey in the early part of the present, led the way; and the latter surgeon stamped it with his approval as the method *par excellence* for the treatment of fracture. It is to the late Baron Seutin, of Brussels, however, that we are mainly indebted for bringing into note the starched apparatus, and for showing how it may be applied at the earliest stage of fracture, not only without danger to the limb, but with a certainty of shortening the period of repair. To Erichsen,^a Gamgee,^b and others^c is due the credit of popularising this mode of treatment in these countries.

The old theory of Duhamel and Dupuytren, by which it was supposed to be necessary that a certain quantity of provisional callus should be thrown out and ossified as "nature's splint," is shown to be unsound. The most rapidly and best consolidated fractures are those which have united by the first intention, without a particle of provisional callus, and the connexion between inefficient control of muscle and such superabundant effusions is undeniable. In such bones as the tibia, firm bony union between the broken ends is attainable in four weeks, or even less, where there is only a thin layer of interposed lymph to organise and ossify; whereas, if a mass of ensheathing callus is thrown out, it will take at least six weeks before this thick and low-organised mass is even imperfectly ossified, and it is more than probable that the true uniting layer between the fragments does not commence to be ossified in such cases until the ensheathing callus is nearly perfected: hence, in these latter cases, weakness in the limb, and a tendency to oedema remain for a long time persistent; and when the patient goes about, there is a certain amount of risk of refracture. Other and more palpable advantages of the starched apparatus are the facility with which the patient can be moved about when the case is dry. Patients with comminuted fracture of both bones of the leg, for example, can not only be turned in bed freely, but may get up on crutches on the third or fourth day after the fracture: hence the muscular system is kept in tone, and the weakening effects of a prolonged confinement to bed are avoided; in many instances also the patient is able to attend to business after the first week, if his occupation be of a sedentary nature.

The mode of applying the starched apparatus in general favour is as follows:—

The limb is wrapped in cotton wool so high as the middle of the joint above the seat of fracture. For example: if the tibia be broken, the wool must extend half way up the thigh. The layer of wool must be thick,

^a Science and Art of Surgery.

^b The Advantages of the Starched Apparatus.

^c On the Union of Fractured Bone. Dublin Quarterly Journal, Vol. xix.

especially over the seat of fracture, and over the joints and bony prominences. Splints or porous pasteboard, well softened, and soaked or rubbed well with starch, are now placed at each side of the limb, and behind it, extending as high as the wool. In the example adduced the lateral splints are furnished with portions for the sides of the foot, while the posterior splint extends only to the hollow above the heel; in stout persons an anterior splint may be needed. A roller-bandage, well soaked in starch, is now applied evenly over the splints with sufficient tightness; the splints are graduated in width, so as to allow an interval of half an inch at least between their margins. A second layer of bandage may be applied over the first, especially in large people, or in fracture of the thigh or humerus. Exposure to the air, or the application of hot sand-bags will dry the case in 24 or 36 hours.

This case should be applied as a rule as early as possible. If applied before effusion has taken place, it will modify and control it, without the possibility of exerting injurious pressure. The elasticity of the cotton admits of unavoidable swelling, and checks what would be excessive, and this without risk. If effusion has taken place, the same elastic pressure checks its increase, and promotes its absorption. The surgeon has always a sure criterion that his pressure is not interfering with sufficient circulation if he leave the nails uncovered, and observe the colour and movement of the blood underneath them. The feelings of the patient are not a sufficient guide, as it is well known that gangrene of a limb has occurred without any complaint of pain being made; but, if cotton be used in sufficient quantities next the skin, strangulation cannot take place. It makes a difference of at least 10 days in the patient's convalescence if the apparatus be delayed until effusion arises and subsides; the reparatory process is interfered with, delayed, and checked by every excess of action in the part.

This immediate application of the immovable apparatus is the peculiar feature and great improvement of modern practice. Those who object to it are those who have seen mischief arise from its improper application, or who have not been at the pains to understand its principles; none who have once tried the method, as it ought to be applied, will, as a rule, follow any other. When the case is dry, which will be in 24 hours, or sooner, if hot sand bags are placed round it, it is to be slit up along the interval between two of the pasteboard splints; the surgeon can now examine each side of the limb by turning down the lateral halves of the case in succession, an assistant keeping the limb by firm and gentle pressure in contact with that half of the splint which is not at the moment turned down. Complete inspection of the limb, without any disturbance of the fracture, is thus obtained. Any irregularities can be redressed by some extra padding with cotton wool, and, as the limb shrinks in size, the case is pared to fit it. An external bandage is applied to keep all in place,

and as soon as all traces of effusion have disappeared, this outer layer may be starched, and the patient allowed to leave his bed. In this way, in favourable cases, where the apparatus is applied early, a patient may be able to be up, and out walking on a crutch, with the limb in a sling, in three days after fracture.

Baron Suetin used dextrine as a readier material than starch; it has the advantage of drying more rapidly. Plaster of Paris is also used to saturate porous bandages, and is still more remarkable for rapidly fixing the limb; in children, it has a manifest advantage. White of egg and flour make a very firm mould and light, but in warm weather it is apt to become offensive. As starch is a universal commodity, it will, perhaps, be the general favourite, though where choice can be had, it would not be selected before dextrine or gypsum.

Whether we apply the *appareil immobile*, or any other form of splint our object must be to control the action of all muscles which have either origin from, or insertion into the fractured bone. This gives us a rule, pointed out so long ago, at least, as by Pott, namely—that no apparatus is worth anything which does not control perfectly the articulation above and below the seat of fracture.

Fracture of the Femur.—Scarcely a year passes by without some ingenious surgeon modifying our fracture apparatus, and in general these alterations apply specially to the treatment of *fracture of the femur*. It were impossible, even if likely to be productive of good, to specify all that seems deserving of commendation in these mechanical appliances. In Hamilton on Fractures and Dislocations, a large collection of these will be found, to which may be added Dr. Gibbs' expanding splint, Winchester's jointed splint, Dr. Zachariah Johnson's, Dr. Bevan's, and Mr. Butcher's splints.

The young surgeon who feels within him the promptings of ambition to add to the *armamentarium chirurgorum*, will do well to study what it already contains, before expending his ingenuity in devising splints for fractured femur. Those who may find it expedient to employ extending and counter-extending force, will find the *accumulators* of great service. These are thick ropes of vulcanised India rubber, with rings at each extremity; when put on the stretch they exert a considerable and continuous force which may be available for the above purpose. Bauer's wire splints deserve favourable notice for lightness and cleanliness.

Mr. Hamilton has very carefully gone into the evidence in favour of bony union of simple intra-capsular fracture of the femur, and expresses himself against its occurrence. As has been done by Robert Smith before him, he resolves the supposed cases into mistakes of diagnosis at the time of injury, into impacted fractures, and into chronic rheumatic arthritis.

Fracture of Patella.—Le Gros Clarke suggests a splint with a circular

or oval aperture in the centre, to correspond with the patella. Sanborn^a applies a broad strap of adhesive plaster from the top of the thigh down to the middle of the leg, leaving at the knee a free loop; bandages are rolled over the entire limb, omitting the knee; a small tourniquet pad is placed above the upper fragment, and a turnstick inserted in the loop and twisted until the fragments come in contact. The only deficiency in the description of this plan, as given by Hamilton, consists in there being no means described for preventing the turnstick from untwisting, as we can scarcely suppose the adhesiveness of the plaster to suffice for this purpose; this mode might be superadded to the starched case; with the latter however, alone, admirable results may be secured.

Mr. Tufnell^b details a most interesting case of fracture of both patellæ in the same individual; slipping while going up stairs she fractured one patella by muscular action, and falling in consequence, she struck the other against the steps and fractured it also.

Hooks for Fractured Patella, and the Spike for Oblique Fracture of the Tibia, which owe their origin to the ingenuity of Malgaigne, cannot be classed among improvements in surgery, and are only mentioned for the purpose of showing that the complete neglect which they have sustained at the hands of British and Irish surgeons has not been from ignorance of their existence, but from a well-founded dislike to such retrograde mechanisms.

The swinging cradles of Luke, Salter, and Gibb are real improvements conducive to the safety and comfort of the patient, and have come into general use in one form or other.

Fracture of the Radius.—The ingenuity of surgeons seems well nigh exhausted as regards this fracture; or perhaps the labours of Colles, Velpeau, R. Smith, and a host of others have so clearly elicited the anatomy of the fracture and the principles of its treatment that there is less room for perverse ingenuity. Mr. Gordon, of Belfast, has lately put forward a splint, the merit of which consists in using a wooden pad to fill up the concavity of the radius which ought to exist at the seat of fracture. In the last number of this journal a review of this appeared. The method is an ingenious modification of what is known at the Meath Hospital as Crampton's or Smyly's method. It remains to be seen if the substitution of a wooden for a soft pad is an improvement—if the splint is long enough to give support to the hand, and prevent displacement. On the latter point there is at least a suspicion of well-founded misgiving.

For patients of advanced years Nelaton's method by two splints, a short anterior and long pistol-shaped dorsal splint seems the favourite. For the majority of cases, one anterior splint, reaching from the elbow to the flexures of the fingers, and sloped off to correspond with them, is

^a Mr. Hamilton, *Op. cit.*

^b Dublin Medical Press.

sufficient, provided the pad at the wrist be made and kept high enough to act as a fulcrum, and press against the displaced bone at the seat of fracture. If, for the first 10 days, the elbow be kept immovable, and the height of the pad from time to time renewed as it becomes flattened, complete reduction of the displacement will be obtained and preserved until union commences. A light, moulded, splint of Spark's leather may then be applied for a fortnight longer; after which some motion of the fingers may be encouraged, and the apparatus gradually removed. This plan enables the patient to regain fair use of the hand much sooner than Nelaton's does. In the latter the tendons are much compressed and matted, and six months generally elapse before pronation and supination are restored. Good arms can be turned out either way; but the Cramp-ton method has the advantage of putting the arm into the position which is naturally the most easy, whereas Nelaton's is a cramped and unnatural position.

Statistics of Fracture.—Mr. Bryant^a gives us some painstaking and useful tables upon compound fracture, deduced from 302 cases treated in Guy's Hospital during the last twenty years. Some of his results are as follows: Compound fr. of thigh, ... 5·6 per ct., of which 64·7 per ct. proved fatal.

„	leg,	63·9	„	„	38·3	„
„	arm,	11·5	„	„	11·4	„
„	fore-arm,	18·8	„	„	12·2	„

Of the whole number 31·7 per cent. proved fatal.

Of the causes of death, it would appear that in cases subjected to amputation pyemia is twice as fatal as in those treated without amputation, and that exhaustion is a more common cause of death. Delirium tremens and tetanus were causes of death more frequently in those not operated on, than in those subjected to amputation.

In compound fracture of the thigh, as may be expected, the deaths hold a large per centage. The majority demand amputation; in fact none but uncomminuted fractures in the young and healthy, or the rare case in which the comminuted fragments can be at once removed, have otherwise a chance of recovery, or of a useful limb.

DISLOCATIONS.

Much that is new is not to be expected in either the etiology or treatment of dislocations. We find a determined effort to bring forward manipulation as a means of reduction, in preference to extension and counter-extension. The name of Dr. Reid, of New York, is prominently connected with a method which is briefly comprehended in the following direction, as applied to dislocation of the hip:—"Flex the leg upon the thigh; carry the thigh over the sound one, upwards over the pelvis as high as the umbilicus, then abduct and rotate it." A variety of means

^a Medico-Chirurgical Transactions, Vol. xlv.

similar to these have been adopted from the earliest days. Even in Hippocrates a direction is given for cases that resist extension, to bend the limb at the joint and rotate; and in many writers since his time such directions are amplified and enforced. Dr. Markoe, of New York, adopts a similar method to Dr. Reid's, with the addition of slowly extending the limb, after it has been flexed and abducted. Mr. Cock and Mr. Birkett, among others, have followed Colombat's method, in which the patient stoops over a table, and the operator stands behind him. The principle, however, is the same in both—namely, to use the shaft of the femur as a lever, and so act upon the muscles which retain its head in its abnormal position with irresistible force. Much of the modern ease in reduction of dislocations is, however, due to chloroform.

PLASTIC SURGERY.

Cleft Palate.—The preceding *decade* witnessed the rise of Messrs. Fergusson and Mason Warren's improvements in operations for cleft palate. The last 10 years have seen their suggestions carried out, and, perhaps, in some degree improved. For the division of the muscles which act upon the soft palate Mr. George Pollock has suggested a knife, slightly bent upon the flat, and with a double edge; with this he cuts the levator palati from before backwards; and although the incision is necessarily rather larger than Mr. Fergusson's, the surgeon has the advantage of seeing exactly where he is cutting, and runs no appreciable danger of wounding the carotid. Mr. Fergusson's rectangular knife has been altered by making it probe-pointed, so as to avoid the above-mentioned risk, and to prevent the point from hanging in the muscles of the pharynx, as it was found liable to do during the spasmodic efforts of the patient at deglutition.^a

Mr. P. C. Smyly has suggested and practised the division of the levator and tensor palati muscles, by means of a small sickle-shaped knife introduced through the nostril. As soon as the blade is passed back through the posterior nares, the operator turns the cutting edge downwards; he then places the tip of the fore finger of the disengaged hand against the hamular process, and drawing the knife forward, severs all the muscular structures which intervene between his finger and the edge of the knife; dissection will show that this incision will implicate the levator and tensor palati muscles.

Mr. L'Estrange, long ago suggested that much assistance could be obtained, in all stages of the operation, by passing a thread through the point of the divided uvula at each side, and using it as a forceps to hold and draw upon the velum, so as to make it tense for the paring knife, or

^a See a paper on Cleft Palate, by Mr. M. H. Collis, Dublin Quarterly Journal, Vol. xxi, p. 277.

for the insertion of the sutures. I have borne testimony to the value of this suggestion, and Mr. Pollock has since adopted it.

In the separation of the muco-fibrous covering from the bony vault much facility and rapidity of execution can now be attained by introducing the knife through the nostril, at the earlier steps of the operation, as suggested by Mr. P. C. Smyly. The length of the operation is much diminished, as the operator can see what he is about, and can work with more freedom and certainty. There has been some correspondence lately between Langenbeck and Mr. Hulke^a on the subject of a claim which the former makes to priority in detaching the periosteum along with the mucous coverings of the bony vault. No doubt whatever Herr Langenbeck makes this claim in good faith; but there is also no doubt that Mr. George Pollock, of St. George's Hospital, detached the muco-fibrous covering of the palate with chisel-edged knives, in July, 1855. I assisted at the operation—having gone over to London for the purpose. And in the latter part of the same year I repeated the manœuvre on another patient in the Meath Hospital. Mr. Pollock and I discussed the question of danger to the bones if deprived of their periosteum, and we came to the conclusion that the anastomosis of the vessels through the bones, from the periosteum of one side to that of the other, was so free in this situation that there was no danger of exfoliation; and the result justified the opinion. From the success of Mason Warren's operations I am inclined to think that he also detached periosteum along with mucous membrane as early as the year 1843. This, however, is but surmise. What I state about Mr. Pollock is fact—*me ipso teste*. For the insertion of sutures much mechanical ingenuity has been wasted. Startin's tubular needle is the only improvement which need be noticed. I must say that I personally prefer Liston's needles to any other method of inserting sutures. With three of these differing in curve from each other, any man who chooses to educate his hands, can pass sutures better than with any other mechanical appliance. In fact, there need be no difficulty in planting a suture anywhere within view, and many a one I have inserted where I could only see the point of entrance.

Vesico-vaginal Fistula.—Upon the kindred subject of vaginal fistula there is good reason for congratulation. The introduction of the silver wire suture by Marion Sims, has enabled us to grapple successfully with what was one of the greatest opprobria of surgical art. It is not necessary to enumerate the host of ingenious plans which our transatlantic brethren delight in offering for our adoption. I believe we shall come in time to find that the majority of cases can be cured by simple vivifying of the edges, and close stitching with silver sutures, and that Marion Sims' metal bars, Bozeman's shield of lead, and other kindred appliances, will

^a Medical Times and Gazette, August and November, 1861.

be of exceptional usefulness. I dare say my own favourite quilled suture of vulcanized India rubber will come into the same category, although it may seem to deserve a better fate, as having been the means of reviving the belief of our Dublin surgeons in the curability of the accident. In this branch of plastic surgery, we have no reason, in Dublin, to feel dissatisfied with the success of the past decade. There have been many operators, since my first case in the year 1855, and each has contributed his share of success, and has added to our practical experience of the various modes and positions of operating. Marion Sims' duck-billed speculum is of great, though not invariable, value. In some cases broad brass spatulæ will answer better, and in fact, most of my best cases were done with these. Mr. Hilliard of Glasgow, has made a quadrilateral dilating speculum, which expands the interior of the vagina to the utmost, and which has the advantage of being self-retaining. It is highly spoken of by Dr. J. B. Brown. Dr. Simpson of Edinburgh, has found iron wire to answer as well as silver, for the sutures. In my hands it has not done so, and the general feeling of the profession, both here and in London, is in favour of the more noble metal.^a

Ruptured Perineum, &c.—Dr. J. B. Brown,^b of London, has done much to perfect operations for the cure of ruptured perineum, vaginal cystocele and rectocele, and prolapse of the uterus. By a sufficiently extensive removal of the mucous membrane of the vagina, and by paring the ruptured edges he obtains a large extent of raw surface, and by the quilled suture these are kept in close apposition until union takes place; a free division of the sphincter being added for the purpose of paralysing its action. The form and extent of the raw surface which he makes depend on the amount of laceration, and the seat and severity of the prolapse. The division of the sphincter is only necessary for ruptured perineum. In few words, the principle of his operation consists in obtaining, not so much a closure of the orifice of the vulva, as a narrowing of the vagina, and attention to this point explains the success, and the superiority of his proceeding over those of others.

Hare Lip.—Allan Duke, of Chichester, has revived the use of fine interrupted ligatures on the mucous surface, and there has been an attempt to revert to the older plan of quilled suture, which was the rule before the twisted suture was copied from the tailors. The deformity which remains after the best planned operation for hare lip, consists in the lip being both too thin, and too shallow at the point of union; this results from a gradual thinning of the cicatrix, and can only be obviated by making the lip, if possible, a little too thick and too deep at the time of operating. This may be effected by making the incision more curved than it usually is. The gap corresponds to, what ought to be in most faces, a curved and raised

^a *Lancet*, March, 1858.

^b *Surgical Diseases of Women.*

line; but the ordinary straight incision, by which the edges are vivified, necessarily leaves a straight cicatrix, and, generally, a depression where an elevation ought to be. This deformity might be remedied by hollowing out the edges with a narrow bladed knife, as they are being vivified, and the lip might be thickened by using the quilled suture.

It is a matter of surprise to find so intelligent an observer as Mr. Spencer Wells, putting forward, as his opinion, that simple hare lip is merely non-union of the median labial fissure;^a the situation of the cleft is always to one side of the mesial line, and corresponds to one, or both, of the ridges which run from the nose to the free border of the lip.

A variety of methods have been proposed to increase the depth of the lip, and prevent the little tuck up, which almost invariably is observed at the point of the cicatrix. Malgaigne carries his incision down, at each side, towards, but not through, the free border of the lip, he then cuts off two-thirds of the little slips and turns down the remaining third of each, so as to form a projecting nipple along the free border. This can be trimmed afterwards if too exuberant. Langenbeck and Coste, of Marseilles, pare one side in the same manner as Malgaigne, and the other they simply pare, rounding off the free angle, so as to get a raw surface along the border of the lip, to which to apply the lower third of the slip of the opposite side, thus making the cicatrix vertical through the upper two-thirds, and oblique along the lower third of its extent. Sedillot used a similar manœuvre to that of Malgaigne, and I remember to have heard Mr. Smith, of the Leeds Infirmary, describe a similar proceeding as one which he had been in the habit of following for years.

Most surgeons will now follow the conservative practice of Gensoul, in retaining the central bone in cases of double hare lip and fissured alveoli and palate; except in cases of extraordinary deformity it may be pushed back into its place with advantage. Mr. Butcher^b has figured some bone nippers by which the necessary partial incisions into its pedicle can be effected.

In separating the lip from the alveolar process, Soupert [Nouveau procédé pour le Bec de lièvre, Brussels, 1858],^c is careful to preserve the labial frenum, as he imagines that in after life the lip loses much of its characteristic expression if the frenum be removed. The labial frenum proper should never be divided, but the adhesion of the outer border of the fissure to the alveolar mucous membrane should always be divided. Care should also be taken not to separate the fold of mucous membrane above its proper line of reflection from the gum to the lip, as a fistulous opening sometimes remains upwards to the nares, if this be done. Too extensive severing of these natural reflections of the membrane leads to the

^a Surgical Dictionary, 8th Edition.

^b Dublin Quarterly Journal, 29.

^c Surgical Dictionary, p. 869, 8th Edition.

lip becoming too shallow at the very point where increased depth is required.

Some of Mr. Bryant's clinical notes on this subject are interesting. Of 47 cases, 30 occurred in boys, but 17 in girls, thus corroborating the general notion that the malformation is commoner in male than in female children.

21 were simple hare lip.

3 complicated with fissured gum.

2 " " hard palate.

17 " " soft do., and

2 were double.

44 were operated on.

3 within a fortnight after birth, of whom one died.

7 were four or five weeks old; in two of whom the line of union gave way, but subsequently closed by granulation.

6 were operated on between 6th and 7th week successfully.

10 between 3rd and 6th month, with one failure.

5 " 6th and 12th, successfully.

13 after 1st year, "

These results are in favour of delaying the operation until about the sixth month. Earlier operations may succeed even in a majority of cases, but one or two failures from premature interference will more than justify the delay.

Mr. Butcher is in favour of early operation, justly considering that the success of this, as of many other operations, depends much on the care and skill of the surgeon, and on the health rather than on the age of the patient.

Deformities resulting from Burns.—Mr. Rynd^a proposed and executed an operation for the remedy of these deformities, to which his name deserves to be attached. It consisted first, in making his incision beyond the margin of the injured skin, in parts that were perfectly sound; and secondly, in dissecting up along with the flap every portion of underlying fascia, or even muscle, which had been included in the original injury and which had undergone the contractile change which results from it. To Rynd's operation Butcher^b has added a subcutaneous scoring of the flap and division of such bands as threw it into ridges. Mr. Barton^c recommends that simple extension should first be tried, then subcutaneous section of unyielding bands, and if these were insufficient, the severer operation of dissecting up the flaps.

TRACHEOTOMY.

For facilitating the opening of the trachea we have various forms of

^a Dublin Quarterly Journal, Vol. xxii.

^b Dublin Quarterly Journal, Vol. xxxiii.

^c Dublin Quarterly Journal, Vol. xxxii.

grooved hook proposed. Spencer Wells suggests the cassigna, or hook grooved on its convexity, Lawford on the concavity, and Churchill on the side. Marshall Hall suggested a common sharp pointed pair of scissors with which, in emergencies, to divide the integument, and by a plunge to enter the trachea, then by divaricating the blades, to allow the entrance of air.

In the *Journal de Medicine et Chirurgie* for March, 1856, we have an account of 57 cures through tracheotomy, in 264 *hopeless* cases of croup, by Guersent. Unfortunately in this country we are not able to produce anything like so favourable statistics. Whether the disease is different in type, or that they operate earlier in France, certain it is that the most successful operators here can produce few, if any, genuine recoveries in the later stages of croup by the operation of tracheotomy; and one can see good reason why it should be so, if the formation of the false membrane be from below upward, and not from above downwards; so that the lungs are hopelessly inflamed and blocked up before the trachea is affected.

Fock also states that he saved 10 cases out of 24 in the last stages of the disease.^a

ORTHOPEDIC SURGERY.

In *Orthopedic Surgery* we have a reaction against indiscriminate tenotomy. Mr. Adams^b has shown that tendons contained in synovial sheaths do not unite when divided, but that they form adhesions to the sides of the sheath, and that the interval between their ends is permanent; thus a considerable loss of power results. This statement, as regards human tendons, coincides with the previous experience of M. Bouvier on the tendons of animals, and is supported by Mr. Barwell,^c who goes so far as to say that such muscles as the tibialis posticus, and flexor longus digitorum, might as well be struck by sudden and irremediable paralysis, as be subjected to the knife of the tenotomist; and that the tibialis anticus is only a little better circumstanced. The peronei also are similarly situated.

I have seen two very simple and efficient forms of splint for varus, one a straight piece of flexible tin, covered with chamois leather, an inch and quarter, or so, wide, and long enough to wind round the foot and extend along the outside of the leg, well above the knee. This acts as an external ligament or set of muscles, and when secured by a bandage it can be bent to any required position, which it will retain, and thus exercise any required amount of force, and in the direction that seems most suitable to the surgeon. This simple splint was devised by Mr.

^a Deutsche Klinik, 1859.

^b Adams on the Reparative Process in Human Tendons.

^c Medico-Chirurgical Society Reports, in British Medical Journal, Dec. 7, 1861.

Wharton, of the Meath Hospital, and has been of great service in several cases in which I have used it. Another very similar idea is embodied in a straight splint of Mr. Adams,^a which is made of tinned iron, and runs down the outside of the leg from the knee, below the foot; it is slightly hollowed to the shape of the leg, the upper end is firmly bandaged to the knee and calf, and by this means a lever power is obtained, so that by continuing the bandage down the limb, great force can be brought to bear upon the inverted foot. There is not, however, the same power to bring down the heel which can be exercised by Mr. Wharton's splint, or by Mr. Colles' simple hoop-iron splint, described in the first number of the *Dublin Hospital Reports*, but it is of great service in the later stages of cure.

Of strange operations, Mayer's for genu valgum is the strangest; he cut out a wedge-shaped piece from the inner side of each tibia, below the tuberosity, and treating his wound as a compound fracture, succeeded in obtaining for his patient a pair of straight legs! *Ce jeu ne vaut pas la chandelle.*^b

MINOR SURGERY, INSTRUMENTS, &c.

For Removing Carious Bone.—Among hundreds of implements few surpass the *osteotrite* of Mr. Marshall, and the *double or forceps-gouge* of Coxeter. The former is an enlarged edition of the common mill-head used by dentists; it is most efficient for clearing away all that is diseased in irregular cavities, while the gouge forceps is most efficient in removing projecting irregularities.

The *écraseur* invented by Chassaignac was, at first, to supersede all cutting instruments; and its admirers went so far as to invent an *osteoclast* to enable the surgeon to perform a bloodless amputation. But this first enthusiasm has died away, and it now remains a useful instrument for the removal of hemorrhoids or any small pedunculated tumours, especially those arising from mucous surfaces, with a caution against too free removal in the case of piles, as mechanical stricture of the anus has been the result in some cases.

The *drainage tubes* of the same author should also be mentioned as a useful modification of a very old method of treating chronic abscess.

The *serres-fines* of Vidal are not as much used as they might be for retaining the margins of wounds in contact. Probably the general introduction of metal sutures, for which we are indebted to Marion Sims, Simpson, and others, has somewhat superseded their use.

The *Acupressure Needles*.—With Professor Simpson's we are all tolerably familiar. They too would seem to have been accorded at first a too extensive applicability, and to have been used in cases where, to say the

^a Medical Times and Gazette, July, 1857.

^b Heyfelder's Memoirs on Resections.

least, they were not wanted. It remains to be seen if they are destined to take any permanent place in the surgeon's armamentarium.

For *paracentesis thoracis*, Mr. C. R. Thompson, of Westerham,^a has devised an excellent canula and trochar, by which the entrance of air into the pleura is rendered impossible. The canula is four inches long; near its middle a short silver tube of the same calibre is let in at right angles; to this side piece, a foot or so of India rubber tubing is to be attached, the end of which is to lie in a vessel of water, with which the tube is to be filled by the simple process of giving it a squeeze. The trochar, which accurately fits the canula, can only be withdrawn so far as to open the communication with the side tube. It will be seen that with such an instrument air cannot get into the pleura.

Of *Tourniquets* we have ample supply. Signoroni's clamp tourniquet, Salt's plain band of steel, Key's expanding tourniquet are all good in their way. For field purposes Signoroni's, with Archimedean screw at the hinge, is the most rapid and powerful. It can be applied, and the limb amputated in half the time that Petit's would take to adjust.

Bandages.—MM. Mayor and Rigal^b have proposed to substitute handkerchiefs and napkins for roller bandages. Many of their adaptations are extremely neat. The old double handkerchief for fractured clavicle is an example of the system. Others for the groin, for supporting the breast, and as suspensories for the testicle are simple and satisfactory; but as usual the idea is run to distraction by its authors.

Hypodermic Injection.—The direct application of remedies by this means is a valuable addition to our resources, especially in neuralgias, and possibly in tetanus. The credit of originating this method is due to the late Mr. Rynd, who adopted it in the year 1844, and published an account of it in the *Medical Press* of the year 1845.^c His instrument,^d which is expensive, never came into general use, and Mr. Wood has obtained the credit of popularising the method. Mr. Rynd used a solution of morphia in creosote, in the proportion of 10 grains to a drachm, injecting from six to twelve drops, for sciatica along the sheath of the nerve, with excellent effect. Excellent results are obtained by superficial scarifications over the terminal branches of the affected nerves, and by painting the scratches with a solution of morphia in creosote and chloroform. This has been used by Dr. Jameson, of Mercer's Hospital, for many years.

As a *Styptic*, the perchloride of iron has come into favour; and its solution has been introduced, with some temporary benefit, into the sloughing and bleeding masses of fungating cancers. Of its use in aneurism mention has been elsewhere made.

^a Medical Times and Gazette, March, 1858.

^b Goffres on Bandaging. 1854.

^c Dublin Medical Press, March 12, 1845.

^d Figured in our August Number, 1861.

For *Local Anesthesia*, ice has also been used, and also as a *styptic*. More was, perhaps, expected from it in both capacities by Dr. Arnott; but there is no doubt, on the one hand, that the steady application of cold is of great service in retarding the growth of the more acute tumours, and on the other, that its value as an anesthetic for operative purposes is limited to cases of minor importance, such as operations for onyxia or onychia.